

**NASA**

National Aeronautics and  
Space Administration

Lyndon B. Johnson Space Center  
Houston, Texas



**Back on track**

JSC employees talk about what the safe return to flight means to them. Story, photos on Page 3.



**Return to flight**

STS-26 was a success, and thousands turned out at Ellington Field to share their elation with the crew. Stories, photos on Page 4.

# Space News Roundup

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# We're Back!







William McCormick, Brown & Root, says he's glad the space program is getting back on track.



Preston James is manager of the Program Integration Office at Computer Sciences Corp.



Paul Hobush, a microfilm analyst in Mission Control is proud and looks forward to future progress.



Laura Chiu, lead librarian admits that tears filled the eyes of colleagues after the successful beginning of STS-26.



Dave Haucker, a security education specialist, asks where do we go from here?

# Workers revel in success

## Pride, confidence, excitement abound across center

Discovery's mission signalled a new beginning for NASA employees and all Americans, invigorating JSC with a pride, confidence and pure excitement destined to defy the limits of Earth again and again.

And employees here are, to understate the situation, more than ready to get to work on that goal. For them, one success breeds desire for another, and it makes the painstaking work required to make long-range dreams into realities a bit more urgent, a lot more tangible.

Simply put, JSC has been ready for this moment for a long, long time.

"We're back on the road again. To me it means the space program is back on track and I'm real happy about it," said Chip Knudsen, a photo technician at JSC. "We've been getting the photo processing and printing equipment ready for the development of flight film."

Most employees were breathless during Discovery's launch, and although tension eased as Discovery achieved orbit, workers were all too aware that the job was not finished until she and her crew came home. Still, enthusiasm grew steadily.

Veteran workers possessed a calmness and assurance, a showcase of expertise and experience. Newer workers were wrapped in intense emotion generated by their hands-on contributions, and, for some, the witnessing of their first launch as a team member.

"This was my first mission," said Gary Zupanic, a production technician. "I was involved and it made me feel so proud. Before I started to work here, I always watched the Shuttle on television and was excited about it. But this time it was so totally different and unforgettable."

"It means a great deal and I'm excited and happy that everything has resumed," said Bob

Jones, a personnel management specialist. "Although we (in personnel management) are removed from the nuts and bolts of flight operations, we're certainly proud of the return to flight. I've been here since Gemini III, and though our regrouping period was not the longest non-flight status ever, its end is encouraging to other professionals interested in joining the team."

Dick Kohrs, deputy director of the National Space Transportation System (NSTS), said the successful completion of the mission was a great relief.

"The emotion and anxiety were high, but overall it was good to be back on the ground again," he said. "I think it demonstrated a tremendous team effort here at Johnson and the other centers. I think now it's a new day and we have to concentrate on the success of STS-27. I think this team is ready to do that. We're on a roll and people will continue to work hard to support the program."

Don Puddy, director of flight crew operations, said he's all smiles now.

"I think the outstanding performance of the NASA/contractor team and Discovery's crew—along with obvious support of the American people—made STS-26 a very proud and

exhilarating event," he said. "We must now exert some degree of diligence and perfection as we continue our safe return to manned space flight."

Throughout JSC's 1,620 acres, many employees enthusiastically continued their daily routines, some with thoughts too private to bare and confidence too bold to admit.

"It's something we've been waiting a long time for," said Paul Hobush, a microfilm analyst in mission operations. "Now it's very satisfying and we can look to the future to see where we go from here."

"Without a Shuttle up in space, it felt like we were simply here doing other things. Now it feels like we're really back in business," explained Reese Squires, a data management supervisor for Stellacom. "We're really pleased and the successful launch is another indication we'll go on stronger than ever."

The return of Americans to space is far from an end in itself to those at JSC, and workers' eyes are now more sharply focused on a limitless future than ever before.

"Just like we did back in the 1800s with land, the progress of space exploration provides a new frontier to conquer. The successful launch reinforces my confidence," said Douglas Case, a worker in the Payload Operations

Center (POC).

"I've been involved in the space program for 22 years and feel that I'm an integral part of it, so success means a lot to me," said Preston James, program integration office manager for Computer Sciences Corporation.

"When the Shuttle went up, several people in the library had tears in their eyes," added Laura Chiu, lead librarian. "This is really exciting and encouraging and we look forward to getting busier."

"The next step is to get the commitment behind us to move us into the future. We need the people to say, 'STS-26 is flying, now, where do we go from here? Are we going to put a space station up? Are we going to go to Mars? Are we going to go back to the Moon?'" said Security Education Specialist Dave Hocker. "We need that commitment."

Henry Pohl, director of engineering, agreed that JSC needs to look to the future.

"We have so much to learn, so much to do," he said. "We have the tools now to make space a fun place to work and play in. I told everybody last night they could celebrate because today we have to go back to work because we have another mission to fly. We have to make this a standard way of business and not operate from crisis to crisis. I think it's good to have a focus and we now have that."

Pohl said his strongest feelings occurred when Discovery's wheels stopped rolling, and reminded JSC employees that they need to keep their feet on the ground as well.

"There are a lot of people making this thing work. It only takes one person out of literally thousands not doing his job on some little dinky thing that nobody thought was important that will cause it to fail."



**'To me, it meant seeing the restoration of our confidence and pride in what we do, as well as a revalidation of the NASA/contractor team's ability to make the tough risk trades that are always going to be a necessary part of manned space flight. We're back!'**

**—Ron Berry  
Mission Support Director**



Reese Squires, a data management supervisor for Stellacom, supports film production for training.



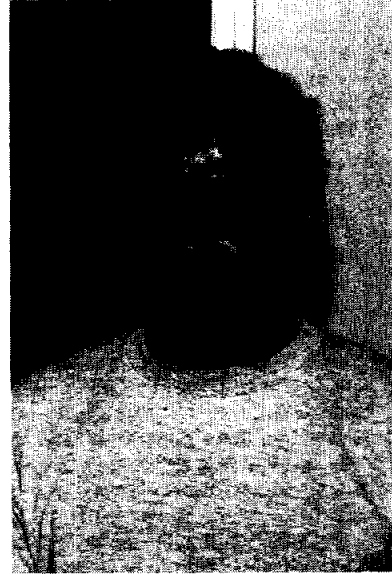
Gary Zupanic, is a production tech, for Stellacom.



Douglas Case, works in payload customer assistance.



Bob Jones, a management personnel specialist hopes to witness further mission developments.



Chip Knudsen, a photo technician, says he's ready to process flight film.

# 'A great end for new beginning'

*Discovery*, guided by Commander Rick Hauck and Pilot Dick Covey, swooped to a perfect landing at Edwards Air Force Base Monday, a landing described by CAPCOM Blaine Hammond as "a great end for the new beginning."

An estimated 420,000 people were on hand to watch, the second largest crowd ever for an Orbiter landing. *Discovery's* main landing gear touched down eight seconds past 11:37 a.m. CDT and Hauck acknowledged the wheels had come to a complete stop 49 seconds afterward. The crew exited about an hour later, after the vehicle had been safed by ground teams and other post-landing work finished.

The crew members, all in excellent condition, were greeted by Vice President George Bush and by their

wives. "You've made us all proud. You've proven that the space program is stronger than ever," Bush told the crewmen.

*Discovery* also is in great shape after her trip to space, Tip Talone, launch processing flow director at KSC, said in a briefing Tuesday. Talone and processing team members had spent the day inspecting the Orbiter.

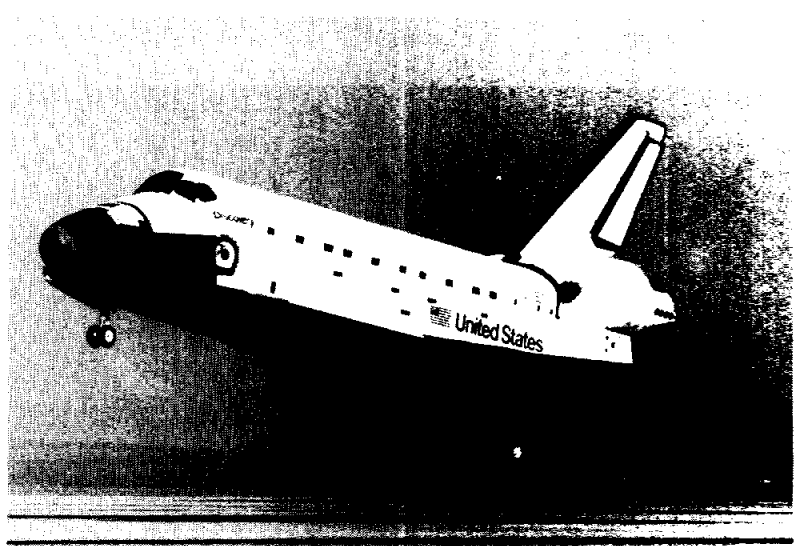
"It's as good or better than any we've seen," Talone said. "When you see it close up, there's very little heating evidence anywhere. It really looks good."

The Orbiter will be mated to the Shuttle Carrier Aircraft (SCA) and become airborne again by Saturday on its way back to Kennedy Space Center. The SCA is scheduled to make a refueling stopover at Kelly Air Force

Base in San Antonio during the all-day trip.

Talone said *Discovery's* thermal protection system tiles appeared to be in very good shape overall. No tiles were reported missing, but a small, oblong—about 1.25-inch deep—gouge was found across the surfaces of about six tiles on the lower right wing, near where it connects to the fuselage. The gouge must have been caused by some type of debris during ascent, he said, but it didn't come close to cutting through the 4-inch thick tiles. The six tiles will have to be replaced.

Also, *Discovery's* modified brakes performed well and appeared to have come through the landing in good shape. "We could see no damage at all, but they'll have to be shipped back to B.F. Goodrich to be taken apart for detailed inspection," Talone said.



**Discovery prepares to touch down Monday on the dry lake bed at Edwards Air Force Base. The flawless landing occurred at 11:37 a.m. CDT, 4 days, 1 hour and 8 seconds after the mission began.**



**A crowd of cheering JSC and contractor employees, bolstered by other supportive Houstonians, welcome home the STS-26 crew at Ellington Field on Monday night.**

## Rousing welcome greets crew

With flags waving, cheers whooping and tears welling, JSC and Houston welcomed home their *Discovery* crew Monday night at Ellington Field, marking the end of STS-26 and a safe beginning of the return to flight.

JSC Director Aaron Cohen, Rear Adm. Richard Truly, NASA associate administrator for space flight, and Houston Mayor Kathy Whitmire joined thousands in voicing their good wishes.

"NASA's number one goal has been to return the Space Shuttle to safe flight status. We did it!" Cohen said. "This is truly an important milestone and one of the most significant milestones in space history—we're back!" he added, thanking the men and women of JSC, contractors, Marshall, Kennedy, Stennis and management team and the STS-26 crew and families.

"This is one of the proudest days of my life," Commander Rick Hauck, flanked by the rest of the STS-26 crew, said from the top of a red, white and blue platform. "And it's wonderful to be able to share it with so many people that we've worked so closely with."

After being interrupted by a cheer of "Good job!" from the crowd, Truly said: "I think the efforts of this team coast to coast to get the flight off last Thursday, the performance of the vehicle and the performance of this great crew on orbit and that beautiful landing today says it all."

Pilot Dick Covey said the view from space on the *Discovery's* last orbit was inspiring, as clear skies let them pick out NASA's manned spaceflight facilities on

the ground.

"From the shores of California to the Gulf Coast of Texas and Mississippi, the hills of Alabama and the east coast of Florida, those centers of NASA that are so important to the manned spaceflight program and have contributed so much—you shared in this adventure just as much as we did. And you're just as much the heroes of this flight," Hilmers said.

"The five of us here just got back from the greatest adventure of our lives," said Mission Specialist Dave Hilmers. "Each one of you out there—friends, family, supporters, co-workers—you shared in this adventure just as much as we did. And you're just as much the heroes of this flight," Hilmers said.

Mission Specialist Mike Lounge said the welcome at Edwards Air Force Base was from the whole country, but that the welcome from friends, families and co-workers meant more.

"The most challenging part of this flight, the hardest part of this flight, was trying to live up to what you deserve and I hope we've done that," Lounge said.

And Pinky Nelson asked families to share the glory of STS-26 with the unsung JSC employees.

"For all the families of those people, I tell you what—tomorrow when they come home from work, why don't you keep your flags and when they walk in the door, wave your flag and clap your hands because you're all the folks that make it happen."

## Return to flight is smooth sailing for veteran crew

After listening for hours to talk of unfavorable upper level winds last Thursday, *Discovery's* crew members were a bit surprised to lift off only an hour and a half late. Once the launch was a success and the vehicle in orbit, however, the mission went almost like clockwork.

"At 9 minutes prior to launch, when they said we're resuming the count, we all looked at each other and said, 'Woo, we're really going to do this!'" Commander Rick Hauck said after returning to Houston.

The launch occurred at precisely 10:36:59.973 a.m. CDT Thursday. Fifteen seconds into the flight, Hauck's attention was grabbed by a Class 3 alarm indicating that the pH factor was high in Fuel Cell 2. But the alarm turned out to be a temporary sensor reading and didn't require correction.

The crew and Mission Control joined the world in taking a breath at the 73-second mark, but the redesigned solid rocket motors (SRMs) continued to barrel upward toward orbit.

The SRMs separated at 2 minutes 11 seconds, and the world breathed a sigh of relief. Hauck said at that point he was "95 percent" sure the mission would be a complete success. The press to MECO (main engine cutoff) call was given at 5 minutes 43 seconds into the flight. Thirty-nine minutes 55 seconds after launch, the number 2 Orbital Maneuvering System (OMS) engine was fired and *Discovery* achieved a nearly circular 160-nautical mile orbit.

"It's nice to be in orbit," Hauck said after completing the OMS burn.

The mission's primary payload, the Tracking and Data Relay Satellite-C (TDRS-C) and its Inertial Upper Stage (IUS), were released from the payload bay at 6 hours, 13 minutes, and the

satellite continued on to its planned orbit.

On day two, Hauck and Mission Specialist Pinky Nelson practiced donning and doffing the bulky new partial pressure suit for the first time in microgravity.

All of the middeck experiments activated throughout the mission by

Nelson appeared to be successful, especially the Protein Crystal Growth experiment, which produced "lots and lots of crystals," he said.

On day four, the crew members paid tribute to the *Challenger* crew and sailed through an in-orbit press conference, with questions originating from JSC's Bldg. 2 Teague Auditorium.

Each day began with an uproarious musical wake-up call. Three were produced by Rick Cahill, a Houston radio producer and part-time JSC tour guide, and the fourth by a group of students from Nelson's alma mater, Harvey Mudd College. Comedian and actor Robin Williams provided special taped introductions—"Good morning, *Discovery!*"—for two of the wake-ups.

Only two problems of significance turned up.

The flash evaporator subsystem (FES) that cools the Orbiter when its payload bay doors are not open showed signs of ice early in the mission. Trying to ensure that the FES would keep working and be available for descent, flight controllers circulated warmer than usual freon through the loop. This kept temperatures on the flight deck a little warmer than usual, but the crew reported no discomfort. As the mission progressed, the ice continued to thaw and when the FES was needed, it performed perfectly.

Also, the crew was forced to restow a balky KU band antenna when it failed to follow aiming instructions.



## Discovery five gives tribute to Challenger seven

From almost 200 miles above Earth in space, *Discovery's* crew—Commander Rick Hauck, Pilot Dick Covey and Mission Specialists Dave Hilmers, Mike Lounge and Pinky Nelson—took a few heartfelt moments on the third day of their mission to pay tribute to the seven members of the *Challenger* crew.

As they beamed the sights they saw to the world, sights whose awesome beauty, according to Covey, cannot truly be done justice by mere pictures, the crew in turn recited the following, beginning with Hilmers:

"We'd like to take just a few moments today to share with you some of the sights that we have been so privileged to view over the past several days. As we watch along with

you, many emotions well up in our hearts—joy, for America's return to space; gratitude, for our nation's support through difficult times; thanksgiving, for the safety of our crew; reverence, for those whose sacrifice made our journey possible."

As Hilmers finished, Lounge began: "Gazing outside we can understand why mankind has looked toward the heavens with awe and wonder since the dawn of human existence. We can comprehend why our countrymen have been driven to explore the vast expanse of space. And we are convinced that this is the road to the future, the road that Americans must travel if we are to maintain the dream of our Constitution—to '... secure the blessings of liberty to ourselves and to our

posterity.'"

Then Covey: "As we, the crew of *Discovery*, witness this Earthly splendor from America's spacecraft, less than 200 miles separates us from the remainder of mankind; in a fraction of a second our words reach your ears. But lest we ever forget that these few miles represent a great gulf, that to ascend through this seemingly tranquil sea will always be fraught with danger, let us remember the *Challenger* crew whose voyage was so tragically short. With them we shared a common purpose. With them we shared a common goal."

And Nelson: "At this moment our place in the heavens makes us feel closer to them

than ever before. Those on *Challenger* who had flown before and had seen these sights, they would know the meaning of our thoughts. Those who had gone to view them for the first time, they would know why we have set forth. They were our fellow sojourners. They were our friends."

Finally, Hauck: "Today, up here where the blue sky turns to black, we can say at long last, to Dick, Mike, Judy, to Ron and El, and to Christa and Greg, 'Dear friends, we have resumed the journey that we promised to continue for you. Dear friends, your loss has meant that we could confidently begin anew. Dear friends, your spirit and your dream are still alive in our hearts.'"

### Space News Roundup

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