



SPACE CENTER
Roundup

VOL. 42 NO. 2 LYNDON B. JOHNSON SPACE CENTER HOUSTON, TEXAS FEBRUARY 2003

Remembering...

STS-107

Rick Dave Laurel KC Mike Willie Nan

SPACE SHUTTLE COLUMBIA

The world grieves with our NASA family

Milt Heflin's words were as sincere as they were understated when describing the mood in Johnson Space Center's Mission Control Center after contact was lost with the STS-107 crew aboard Space Shuttle *Columbia*.

"We began to know we had a bad day," the Chief of the Flight Director Office said to a global audience during a press conference in the Teague Auditorium just a few hours after the tragedy on Feb. 1, 2003.

Milt said it was a great day for a landing at Kennedy Space Center. At 9 a.m. EST, crowds were gathered to welcome home the crew after a successful 16-day science mission. The shuttle was to touch down on Runway 33 at 9:16 a.m.

I believe that their names will remain as the bright sparkling stars in the universe and will light the way for those who will follow them on the difficult roads of space exploration."

VALENTINA TERESHKOVA
First woman in space

Support has arrived from near and far. Love, sympathy and encouragement have been shown in many ways – from letters written by dignitaries to members of the general public placing bouquets of flowers at our main gate.

Valentina Tereshkova, the first woman in space, took a moment to write from Moscow: "I am deeply grieved by the loss of the crew of *Columbia*. I express my sincere condolences to the families and friends of the astronauts. I believe that their names will remain as the bright sparkling stars in the universe and will light the way for those who will follow them on the difficult roads of space exploration."

Since the tragedy, Johnson Space Center has received hundreds of e-mails, all of them sending their condolences to the families of the STS-107 crew.

A woman, who simply identified herself as Jana, wrote: "I just wanted to let you know that you and all of those at NASA are in our thoughts and prayers at this time. I cannot begin to imagine the heartache you are feeling right now! I am sure you will be very busy over the next few days and weeks. Just remember that you are loved!"

Another writer, Beverly McCartt, said: "My family and I wanted to let the folks at NASA know that they are in our thoughts and prayers. Your work is tremendously important to the future of humankind, and it is an enormous and dangerous undertaking – as exploration into the unknown has always been since humans first sought the answer to 'Why?'"

She went on to write: "Take the time to heal your hearts and souls, knowing that you are valued and cherished for taking us to places beyond our dreams. We mourn with you and offer whatever solace we can as you gather together to comfort one another and share your grief with those who truly understand. Take the time to remember – and heal. The heavens await – and you will lead us there. Thank you."

However, 9:16 came and went. Soon the happy gathering turned somber, and the crew's families were taken away. What they soon learned was that MCC had lost communication and tracking with *Columbia* at 9 a.m. and never regained it.

As the world learned of these events, many were shaken and confused. A few hours later, President George W. Bush confirmed the worst.

"The *Columbia* is lost; there are no survivors," he said.

Since that time, the team at JSC, along with our entire NASA family, has worked diligently to find answers while enduring the excruciating pain of our personal loss.

Center Director Message



Remember and move forward

It's raining. The Texas sky is weeping over our terrible loss. First there was shock and denial. Then there was grief and mourning. Now there is frustration and anger.

I've been reading some of the latest headlines: "Stop the Shuttle," "Shuttle Too Old," "Too Expensive," "Too Dangerous," etc. The critics are out in force, taking advantage of our Nation's tragedy. Reading this stuff can give one a sense of hopelessness.

So what do we do about it? Do we say it's too hard and give up? Or do we rededicate ourselves to our purpose and fight the good fight? IT'S DECISION TIME FOR ALL OF US!

Here's what I'm going to do. I'm going to GUT IT OUT. I'm going to give it my best shot. Every day I'm going to dedicate my efforts to the memory of STS-107 and its valiant crew. Every day I'm going to give my very best to further this noble endeavor for which they gave their lives.

I am convinced that we are participating in one of the greatest achievements in the history of humankind. I am compelled to continue no matter how difficult the journey. I will not be denied!

Will you join me?

Beak sends.

FROM THE DESK OF LT. GEN. JEFFERSON D. HOWELL, JR.

This edition of the Roundup...

Like every member of our JSC family, the *Roundup* staff was devastated by the tragic events of STS-107. To honor the memory of our fallen family members, we have dedicated this entire edition to the STS-107 crew – Rick, Dave, Laurel, KC, Mike, Willie and Ilan.

It is our hope that, in this issue, we have captured their exuberance and excitement about their mission, as well as their personalities and humanity.

We also pay tribute to another beloved member of our NASA family – the Space Shuttle *Columbia*. She was our first shuttle and the symbol of our ingenuity. *Columbia* will forever remain special in our hearts.

Finally, this issue's cover photo features a stunning image taken by the STS-107 crew just days before the accident. That photograph now symbolizes to us the sacrifice those seven heroes made in order for us to continue our journey in exploring the mysteries and wonders those heavens hold for all humankind.

Thank you STS-107 crew – you will never be forgotten.

Official statements

PRESIDENT GEORGE W. BUSH

Below is the entire text of President George W. Bush's address to the America public after the tragedy on Feb. 1, 2003:

My fellow Americans, this day has brought terrible news and great sadness to our country. At 9 a.m. this morning, Mission Control in Houston lost contact with our space shuttle Columbia. A short time later, debris was seen falling from the skies above Texas. The Columbia is lost; there are no survivors.

On board was a crew of seven: Col. Rick Husband, Lt. Col. Michael Anderson, Commander Laurel Clark, Captain David Brown, Commander William McCool, Dr. Kalpana Chawla and Ilan Ramon, a colonel in the Israeli Air Force. These men and women assumed great risk in the service to all humanity.

In an age when spaceflight has come to seem almost routine, it is easy to overlook the dangers of travel by rocket, and the difficulties of navigating the fierce outer atmosphere of the Earth. These astronauts knew the dangers, and they faced them willingly, knowing they had a high and noble purpose in life. Because of their courage and daring and idealism, we will miss them all the more.

NASA ADMINISTRATOR SEAN O'KEEFE

Below is Sean O'Keefe's statement on Feb. 1, 2003:

This is indeed a tragic day for the NASA family, for the families of the astronauts who flew on STS-107, and likewise is tragic for the Nation.

Immediately upon indication of a loss of communications from STS-107, at a little after 9 a.m. this morning, we began our contingency plan to preserve all the information relative to the flight activities.

I immediately advised the President and the Secretary of Homeland Security, Tom Ridge, at the point after landing was due to have occurred at 9:16 a.m., and spoke to them very briefly to advise them that we had lost contact with the shuttle orbiter, Columbia, and STS-107 crew. They offered, the President specifically offered, full and immediate support to determine the appropriate steps to be taken.

We then spent the next hour and a half working through the details and information of what we have received, and Bill Readdy, Associate Administrator for the NASA Office of Space Flight, will walk you through the specifics of those operational and technical issues.

We met with the family members of the astronauts who were here at the Kennedy Space Center and are soon to be departing back to the Johnson Space Center in Houston. The President has called and spoken to the family members to express our deepest national regrets. We have assured them that we will begin the process immediately to recover their loved ones and understand the cause of this tragedy.

We have no indication that the mishap was caused by anything or anyone on the ground.

We assembled a Mishap Investigation Team at a point past the stage that the orbiter was to have landed here at Kennedy Space Center a little after 9:30. That team, in turn, is coordinating on a regular basis on all the facts that are pertaining to this from the Johnson Space Center with help from a Rapid Response Team from here at the Kennedy Space Center, as well as participants from the Marshall Space Flight Center in Huntsville, Alabama.

In addition to these internal efforts, we have appointed a Mishap Investigation Board, an external group of people who are independent from NASA who will be charged with the responsibility to look at all the information that was immediately locked down right after the absence of communications.

Each of these individuals are Safety and Mission Assurance related officials in other departments of the Federal government, from the Air Force, the Navy, the Department of Transportation and across the federal expanse. This Investigation Team will be chaired by an individual who

All Americans today are thinking, as well, of the families of these men and women who have been given this sudden shock and grief. You're not alone. Our entire nation grieves with you. And those you loved will always have the respect and gratitude of this country.

The cause in which they died will continue. Mankind is led into the darkness beyond our world by the inspiration of discovery and the longing to understand. Our journey into space will go on.

In the skies today we saw destruction and tragedy. Yet farther than we can see, there is comfort and hope. In the words of the prophet Isaiah, "Lift your eyes and look to the heavens. Who created all these? He who brings out the starry hosts one by one and calls them each by name. Because of His great power and mighty strength, not one of them is missing."

The same Creator who names the stars also knows the names of the seven souls we mourn today. The crew of the shuttle Columbia did not return safely to Earth; yet we can pray that all are safely home.

May God bless the grieving families, and may God continue to bless America.

is external to the federal agencies and will have the responsibility to coordinate all the information from an external view.

So we'll be conducting both the internal activity as well as the external review immediately to ascertain the causes and circumstances under which this tragedy occurred.

We have pulled together all the federal agencies and local governments as well. I have been in discussion several times this morning with Secretary Tom Ridge. The effort is under way to coordinate an understanding of exactly where the orbiter path had taken it from West Texas towards the Kennedy Space Center here in Florida and to make sure that the material on the ground is secured so that the investigation can begin promptly.

We would urge people who believe they have found any material to stay away from it and to please contact local officials. The local first responder groups for emergency services have been authorized and directed by Secretary Tom Ridge to assist in any way. The Federal Emergency Management Agency is coordinating that effort on behalf of the Department of Homeland Security.

I was here this morning with the families of the astronauts and their friends. It started out as a pretty happy morning, as we awaited the landing of STS-107.

We had highly anticipated their return because we couldn't wait to congratulate them for their extraordinary performance and their excellent effort on this very important science mission.

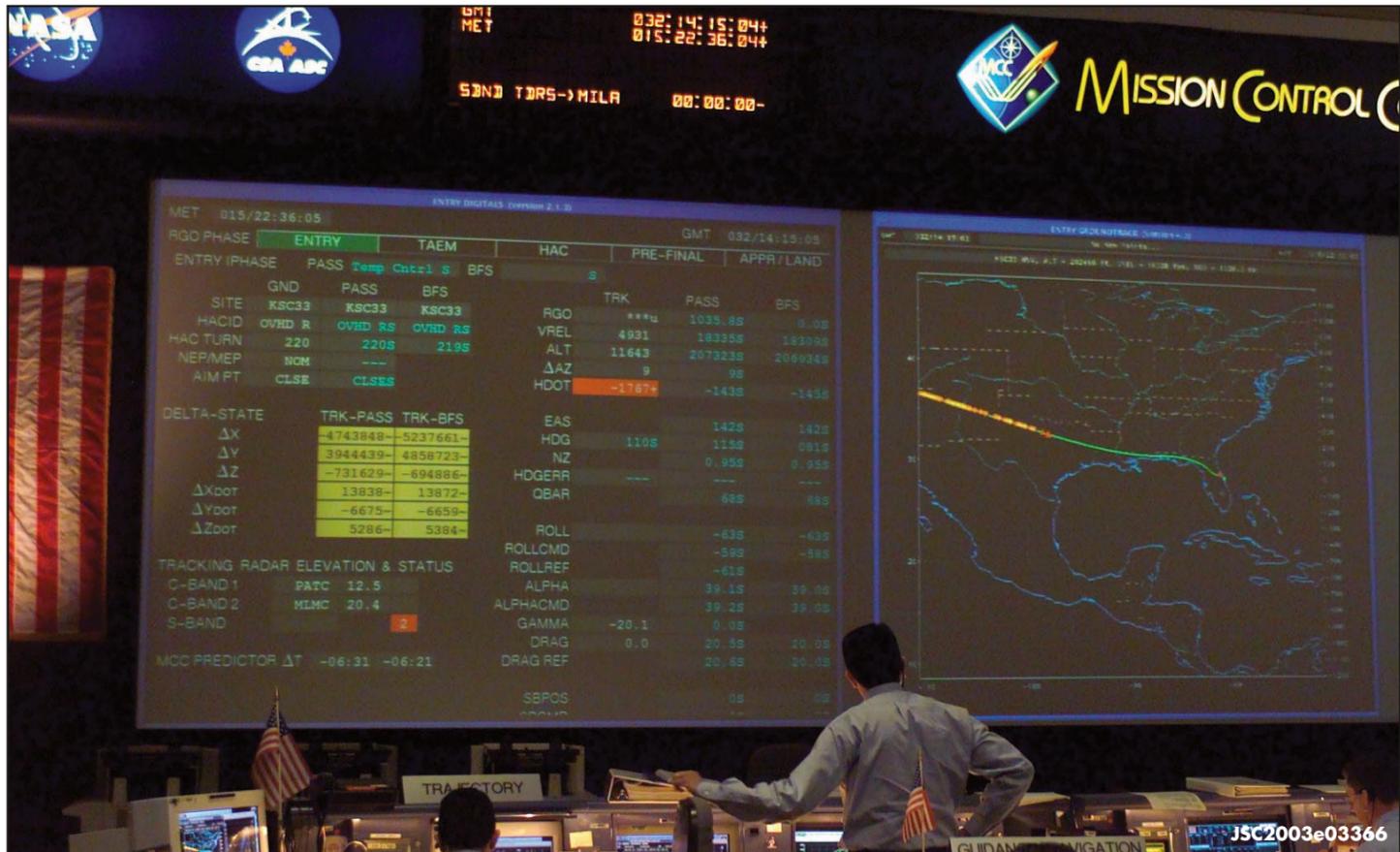
They dedicated their lives to pushing scientific challenges for all of us here on Earth. They dedicated themselves to that objective and did it with a happy heart, willingly and with great enthusiasm.

The loss of this valued crew is something we will never be able to get over. We have assured the families that we will do everything, everything we can possibly do to guarantee that we work our way through this horrific tragedy. We ask the members of the media to honor that too. Please respect their privacy and please understand the tragedy that they are going through at this time. We will help the media assure that this will be the case as well.

We trust the prayers of the Nation will be with them and with their families. A more courageous group of people you could not have hoped to know – an extraordinary group of astronauts who gave their lives – and the families of these crewmembers. They knew exactly the risks. And never, ever did we want to see a circumstance in which this could happen.

We diligently dedicate ourselves every single day to assuring these things don't occur. And when they do, we have to act responsibly, accountably and that is exactly what we will do.

'The Columbia is lost'



As the tragic events of Feb. 1, 2003, unfolded in the Mission Control Center, the assembled team remained calm, even as they were called upon to react instantaneously to a disaster that rocked the entire world.

Despite the unimaginable pressure placed upon them in those painful moments, the MCC team put their own grief aside to handle the situation's enormity with the utmost professionalism and integrity.

The *Roundup* recognizes the skilled men and women of the Mission Control Center who were unwavering in their strength.

Thank you team for your dedication in the face of tragedy. We are proud of you!



ABOVE: A flight controller stares at the trajectory screen, which stops in Texas where mission control lost tracking data.

CENTER: A contingency plan was activated when MCC personnel realized the STS-107 crew was no longer able to communicate with them.

RIGHT: At a press conference several hours after the *Columbia* accident, the faces of Milt Heflin, Chief of the Flight Director Office, and Mr. Dittmore share their emotion over the NASA family's loss with a national TV audience.



Our STS-107 family members

Below are some special memories of the crew shared by Capt. Kent Rominger, Chief of the Astronaut Corps

RICHARD D. HUSBAND

Rick was a terrific human being and great leader. He was my Pilot on his first flight and I grew to appreciate his many talents and gifts as well as laugh at all his Amarillo sayings. My favorite saying of his was, "You know, I feel more now like I did than when I first got here."

As a matter a fact, Rick e-mailed me six days ago from Columbia with this saying in the subject line.

He was a naturally gifted pilot and and outstanding leader. He molded seven individuals from different parts of the world with diverse backgrounds and various religious beliefs into an incredibly tight-knit and productive family.



LAUREL CLARK

Laurel – the dedicated professional with many talents. She was also the queen of STS-107 paraphernalia. She had a different pastel crew shirt for every day of the week, complemented with crew patches and matching crew earrings.

She had a perpetual smile and would never send an e-mail if she could find you in person. Laurel also was very caring and would check on her crewmates and secretary when she was away on vacation. No matter how hectic the day, she inspired us with her ability to reserve time and energy for her family.



WILLIAM C. MCCOOL

Willie – he was incredibly humble with exceptional talents. He was especially gifted at quickly mastering technical information but was also known for his tremendous consideration for others. He enjoyed surprising people with fresh flowers and Hawaiian leis. Willie was uncharacteristically punctual for an astronaut and his instructors could only recall one time that Willie was late for an event over the past two years. A record probably never to be broken!



KALPANA CHAWLA

Kalpana, or "KC" to her friends, was admired personally for her extraordinary kindness and technically for her strive for perfection. She had a terrific sense of humor and loved flying airplanes with her husband and flying in space – this was her passion.

She often reminded her crewmates during their extended training flow: "Man, you're training to fly in space – what more do you want?"



MICHAEL P. ANDERSON

Mike was a perfect choice for Payload Commander: Organized, thorough and someone you could absolutely count on – a gifted leader.

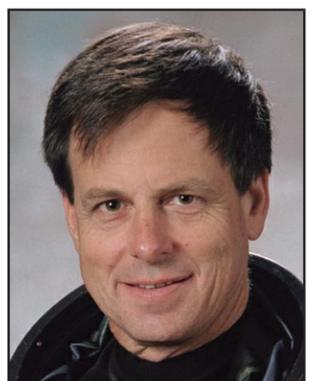
He was the quiet type, unless you asked about his family – or his Porsche. Perhaps because he was quiet, we all loved to see him laugh and he knew just when to drop a great punch line.



ILAN RAMON

Ilan – he was the perfectly poised fighter pilot with a sparkle in his eyes. His instructors remember a moment when he stood dressed in the dark blue thermal underwear we wear under our launch and entry suits, a red Santa Claus hat and joked, "Life is not a rehearsal."

Extremely caring, Ilan sent an e-mail from orbit praising each one of his crewmates and requesting that we consider flying all of them again as soon as possible. He could not imagine flying with a better crew.



DAVID M. BROWN

Smiling Dave or "Doc" to his friends – quiet and observant with piercing blue eyes. He was the bachelor of the group, and as such was constantly in search of food.

Doc also loved cameras and always had one with him, telling those he filmed to "just act like a little brown squirrel." He also had a keen sense of humor and, after a demanding simulator run, asked KC if he could "borrow her brain."



Remembering those



we love and lost...



We will never forget you



The community shares in our loss

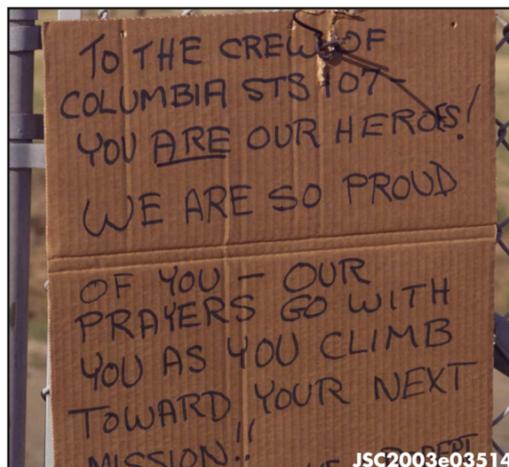


They put up signs and they left flowers. They brought a multitude of flags and they placed wreaths. They honored the magnificent seven with beautiful words, and they mourned their passing with numerous tokens of sympathy.

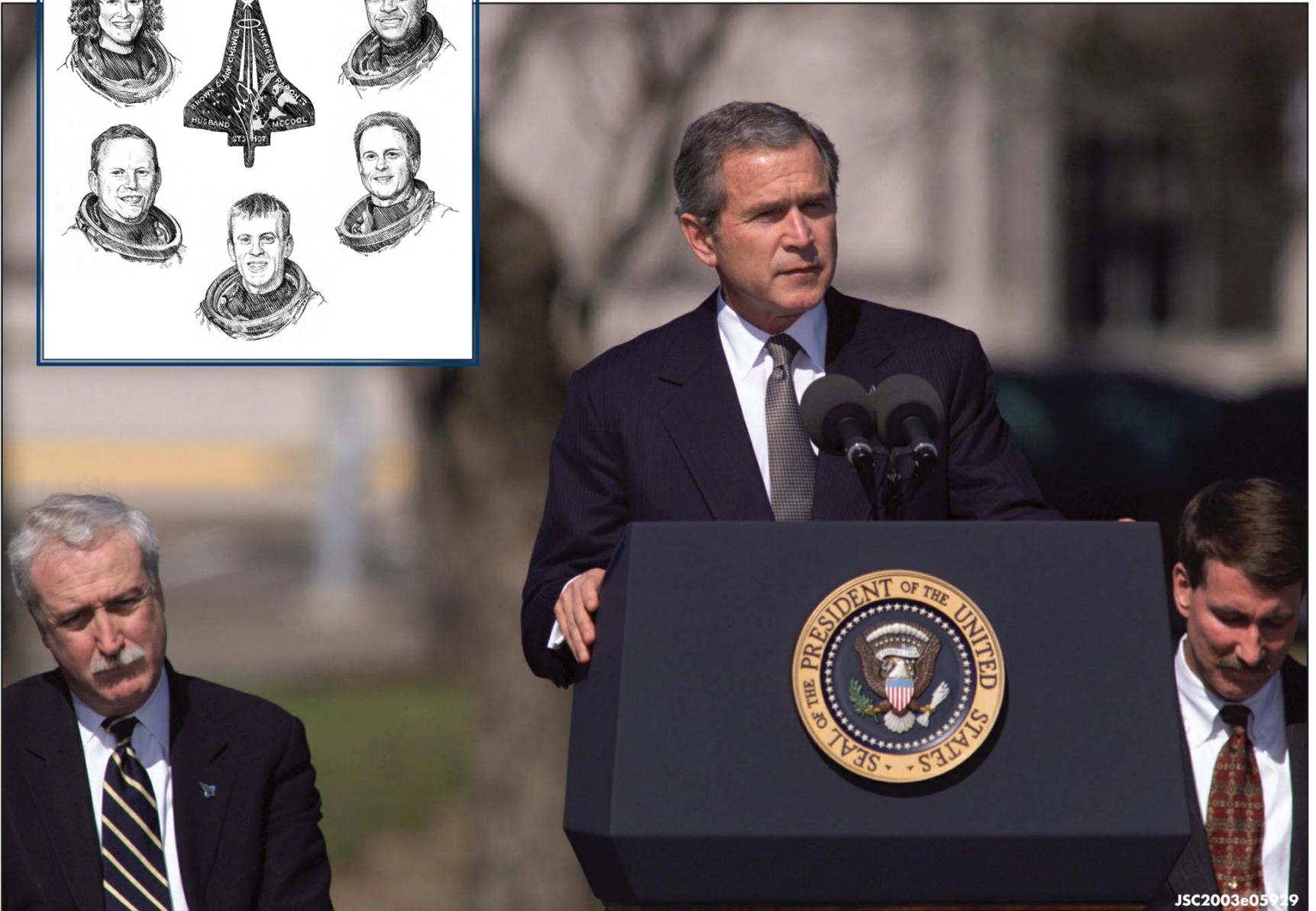
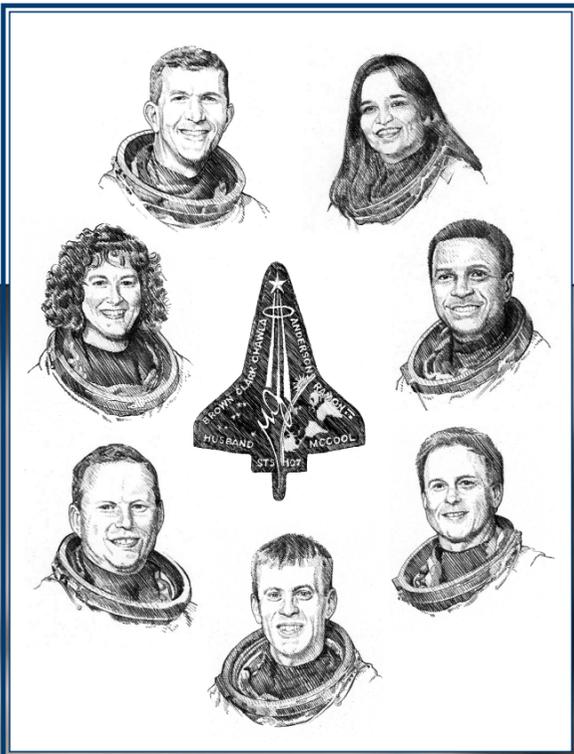
At JSC's entrance, hundreds paid their last respects to the STS-107 crewmembers. They also sought to uplift the JSC workforce with unflinching encouragement.

Hundreds upon hundreds of flowers, wreaths, cards and other items conveyed the public's love.

JSC appreciates the community's support during this most difficult time. It's comforting to know we have true friends outside our gates.



'For these seven,



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ABOVE: NASA Administrator Sean O'Keefe (left) and Chief of the Astronaut Corps Capt. Kent Rominger (right) joined with President George W. Bush to honor the memory of the STS-107 crew. The event was televised across the globe.

"Our whole nation was blessed to have such men and women serving in our space program. Their loss is deeply felt, especially in this place where so many of you called them friends. The people in NASA are being tested once again."

PRESIDENT GEORGE W. BUSH



JSC2003e06668

it was a dream fulfilled'

On a beautiful, sunny afternoon, the world joined President George W. Bush, NASA Administrator Sean O'Keefe and Chief of the Astronaut Corps Capt. Kent Rominger as they led us in mourning the loss of our seven cherished family members.

Four days after the tragedy, thousands of JSC employees filled the courtyard and encircled the pond to pay tribute to the STS-107 crew. It was an emotional event filled with words of sorrow, as well as cherished memories, which honored a group of people who were greatly loved and are sadly missed.

"Their mission was almost complete, and we lost them so close to home," President Bush said to the assembled group of employees, retirees, crew families and other dignitaries.

"The men and women of the *Columbia* had journeyed more than 6 million miles and were minutes away from arrival and reunion. The loss was sudden and terrible, and for their families the grief is heavy."

The President reminded those assembled that the crew was proud to serve their countries in the pursuit of knowledge to benefit the world. "We remember not only one moment of tragedy, but seven lives of great purpose and achievement," he said.

"For these seven, it was a dream fulfilled. Each of these astronauts had the daring and discipline required of their calling. Each of them knew that great endeavors are inseparable from great risk. And each of them accepted those risks willingly, even joyfully, in the cause of discovery."





S81-29212

Columbia, the world's first space shuttle, was unlike anything that had been seen before.

From a technical standpoint, *Columbia* would do what no other flying machine had done before: Take off like a rocket, explore space and return to Earth as a glider to be used again.

She was an example of the ingenuity and expertise of America's best and brightest who designed, built and tested her.

But what most people probably noticed first was how beautiful she was. *Columbia*, named for the first American ship to sail around the world, was said to be the female embodiment of the United States.

She was graceful, proud and daring, and she inspired all who saw her leap into the sky for the first time to follow her.

Columbia's first launch took place on April 12, 1981. She carried a crew of Capt. John Young, Commander, and Pilot Robert Crippen, and brought them home two days later.

The matriarch of the shuttle fleet performed 28 launches over 22 years, landing safely every time but one.

Her last mission before STS-107 was 2002's STS-109, a successful mission to service the Hubble Space Telescope.

Other notable missions for the orbiter include 1992's STS-50, the first extended-duration shuttle mission, and 1999's STS-93, when *Columbia* helped place the Chandra X-ray Observatory into orbit.

The orbiter was given numerous upgrades over the years, including a "glass cockpit" in 2001.

America's first orbiter will be greatly missed by her NASA family.

Hail *Columbia!*



STS107-S-010

SPACE CENTER Roundup

The *Roundup* is an official publication of the National Aeronautics and Space Administration, Johnson Space Center, Houston, Texas, and is published by the Public Affairs Office for all space center employees.

The *Roundup* office is in Bldg. 2, Rm.166A. The mail code is AP121. Visit our Web site at: www.jsc.nasa.gov/roundup/weekly/

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