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## Tragedy again strikes shuttle

### Columbia, with 7 aboard, breaks up

BY MARCIA DUNN  
THE ASSOCIATED PRESS

High over Texas and just short of home, space shuttle Columbia fell to pieces Saturday, raining debris over hundreds of miles of countryside. Seven astronauts perished — a gut-wrenching loss for a country and world already staggered by tragedy.



Debris from the space shuttle Columbia streaks across the sky over Tyler, Texas, on Saturday. Amateur photographer Dr. Scott Lieberman shot a series of photos showing the breakup of the space shuttle from his back yard in Tyler early Saturday.



**INSIDE**  
■ Panel appointed to investigate, A8  
■ Area residents in shock, A9  
■ Ex-NASA engineer recalls Challenger explosion, A9

The catastrophe occurred 39 miles above the Earth, in the last 16 minutes of the 16-day mission as the spaceship re-entered the atmosphere and glided in for a landing in Florida. In its horror and in its backdrop of a crystal blue sky, the day echoed one almost exactly 17 years before, when the Challenger exploded. "The Columbia is lost," President Bush said after he telephoned the families of the astronauts to console them.

"The same creator who names the stars also knows the names of the seven souls we mourn today," Bush said, his eyes glistening. "The crew of the shuttle Columbia did not return safely to Earth, but we can pray they are safely home."

The search for the cause began immediately. One focus: possible damage to Columbia's

protective thermal tiles on the left wing from a flying piece of debris during liftoff on Jan. 16. The loss of seven explorers of space's dark reaches — shuttle commander Rick Husband, Michael Anderson, David Brown, Kalpana Chawla, Laurel Clark, William McCool and Ilan Ramon — brought a new round of grief to a nation still in mourning after the terrorist attacks of Sept. 11, 2001.

#### RISK IN SPACE TRAVEL

And again, Americans were forced to confront the risks of space, along with the glories.

"The reality of what these people do has often escaped me," said Charlie Dillon, 52, of Denver. "But they are frontiersmen; they're out there making my life better and creating endless possibilities for my children."

NASA is appointing an independent commission to investigate. The agency said the first indication of trouble Saturday was the loss of temperature sensors in the left wing's hydraulic system.

The spacecraft had just re-entered the atmosphere and had reached the point at which it was subjected to the highest tem-



A blue wreath with seven red roses and seven white streamers is displayed Saturday in the lobby of the Challenger Center on the campus of the University of Tennessee at Chattanooga in memory of the astronauts on board the space shuttle Columbia.

peratures. NASA officials said they suspected the wing was damaged on liftoff, but felt there was no

reason for concern. They cautioned that it may have had nothing to do with the accident. Authorities said there was no

indication of terrorism; at 207,135 feet, the shuttle was out of range. See SHUTTLE, Page A8

### Disaster revives painful memories

BY KAREN NAZOR HILL AND SEAN MCCOMBS  
STAFF WRITERS

June Scobee Rodgers said she turned on the television at 8 a.m. Saturday to watch the landing of the space shuttle Columbia. Her excitement quickly turned to horror when NASA flight controllers lost contact with the shuttle, she said.

Dr. Rodgers, widowed when shuttle commander Dick Scobee died in the Challenger explosion in 1986, spoke briefly at the University of Tennessee at Chattanooga's Challenger Center on Saturday afternoon.



June Scobee Rodgers

"It's another tragic day for our nation, the space program and especially for the Columbia family," a tearful Dr. Rodgers said.

Dr. Rodgers said she had been in contact with the families of the seven astronauts Saturday morning.

"Right now they are feeling numbness, grief. There are knots in their stomachs; their hearts have shattered," she said. "We've wept together."

Dr. Rodgers said she knew something tragic had happened Saturday when she saw the "streams of puffs and smoke." "It's like time hasn't passed by," she said in a telephone interview Saturday morning.

Dr. Rodgers said she had been especially excited to see Saturday's scheduled landing because, after the touchdown, a national See RODGERS, Page A9

## Iraq hiding mobile labs, U.S. claims

BY PETER SLEVIN  
THE WASHINGTON POST

WASHINGTON — Iraqi President Saddam Hussein is hiding mobile biological weapons laboratories from international weapons inspectors in violation of United Nations Security Council demands, according to the Bush administration, which hopes to persuade a world audience this week of the existence of the secret facilities as proof of Iraqi intransigence.

Meanwhile, the chief U.N. weapons inspectors will return to Baghdad on Feb. 8 for last-minute talks before their next Security Council report on the hunt for banned weapons in Iraq, Iraqi and U.N. officials said

Saturday, according to The Associated Press.

Arms monitors Hans Blix and Mohammed ElBaradei are seeking concessions to speed their investigators' day-to-day work, in particular removing obstacles to U.N. reconnaissance flights and to private interviews with Iraqi scientists. They prefer to see such issues resolved even before their Saturday visit, said ElBaradei's spokeswoman, Melissa Fleming, in Vienna, Austria.

Secretary of State Colin Powell, who will argue the case against Saddam on Wednesday at the council, is working "feverishly" to declassify intelligence reports about vans used as labs, said Deputy Secretary of State Richard Armitage.

He said the goal this week is to convey to "a wider public more

See IRAQ, Page A6

## More motorists are choosing to drive alone

Chattanoogans' use of car pools, mass transit fell 19 percent in 1990s

BY DAVE FLESSNER  
BUSINESS EDITOR

When Chattanoogans go to work, they usually go it alone.

According to Census 2000, nearly five of every six workers in the Chattanooga area drive to and from work by themselves in their own car or truck.

#### Census

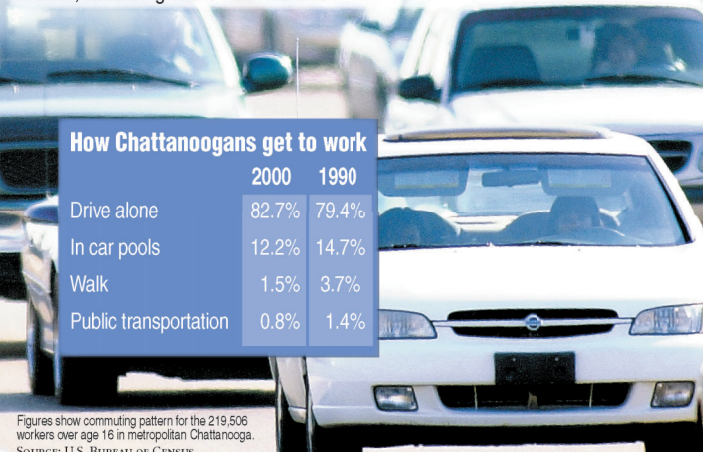


Commuter times grew longer in the past decade because of urban sprawl and road construction, but the share of Chattanooga workers who car pool or ride the bus fell by more than 19 percent during the 1990s, according to census figures.

For many, driving alone is necessary because of varying work schedules and the appeal of living in suburban and rural areas not served by public transportation.

### Traveling solo

Nearly five of every six workers in the Chattanooga area drive to and from their jobs by themselves in their own car or truck, according to the 2000 census.



Figures show commuting pattern for the 219,506 workers over age 16 in metropolitan Chattanooga. SOURCE: U.S. BUREAU OF CENSUS

STAFF GRAPHIC BY LAURA E. WALKER

"We're all on different schedules, and it would be difficult not to have my own car to drive to work," said Danny Cox, a Hixson

homeowner who works downtown. He used to drive regularly even farther to other jobs in Bridgeport, Ala., and Dalton, Ga.

But for many, driving alone to work provides a welcome respite between responsibilities at work and home.

"I enjoy driving to work by myself," said Jayda Woodfin, a UnumProvident employee who lives in East Ridge and works in downtown Chattanooga. "It's actually very relaxing and usually doesn't take that long."

Environmentalists concerned about pollution and congestion fueled by more vehicles on the road would like to see more people join car pools or ride the bus.

"Mobile pollution sources from cars and trucks account for about half of our air pollution problem in Tennessee, and obviously the more we drive, the more gasoline we burn and use up," said Will Callaway, executive director of the Tennessee Environmental Council. "But we

See DRIVING, Page A6

#### TODAY'S WEATHER



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Details, B14



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#### INDEX

|            |    |             |        |             |     |
|------------|----|-------------|--------|-------------|-----|
| Arts       | D6 | Editorials  | F4-5   | Puzzles     | D5  |
| Books      | F6 | Lifestyle   | E1     | Real Estate | H1  |
| Brides     | E4 | Movies      | E6-7   | Sports      | C1  |
| Business   | G1 | Obituaries  | B10-11 | Travel      | D1  |
| Classified | H6 | Perspective | F1     | Weather     | B14 |



## Chronology of NASA's space shuttle program

KNIGHT RIDDER NEWSPAPERS

The space shuttle program was conceived in the late 1960s to provide NASA with a reusable spacecraft capable of launching satellites as well as providing shuttle service to and from a manned space station.

Five shuttles have flown into space: Columbia, Challenger, Discovery, Atlantis and Endeavour. Columbia was the oldest shuttle in the fleet. Here is a chronology of their missions:

- **1981: April 12.** Columbia takes off from Kennedy Space Center on the first mission.
- **1983: April 4.** Challenger lifts off on sixth shuttle mission.
- **1984: Aug. 30.** Discovery lifts off. Mission: deploy communications satellites.
- **1985: Oct. 3.** Atlantis lifts off on a mission for the Department of Defense.
- **1986: Jan. 28.** Challenger

explodes on takeoff 73 seconds into mission

- **1988: Sept. 29.** Discovery flight restarts shuttle program. Mission: deploy a NASA Tracking and Data Relay Satellite-3
- **1992: May 7.** Newest shuttle Endeavour, replacing Challenger, takes off. Mission: repair Intelsat VI satellite.
- **2003: Feb. 1.** Columbia disintegrates over Texas on re-entry into atmosphere.

Sources: NASA, spaceline.org

# Independent panel to study breakup

By MATT KELLEY  
THE ASSOCIATED PRESS

WASHINGTON — An independent board is being appointed to investigate the space shuttle Columbia disaster while NASA and a House committee conduct their own separate inquiries, government officials said Saturday.

Experts from the Air Force and Navy — which had five of the seven crew members — will join officials from the Transportation Department and other federal agencies on the independent review panel, NASA Administrator Sean O'Keefe said.

The space agency also will conduct its own investigation into the disaster, O'Keefe said at a news conference in Cape

Canaveral, Fla. House Science Committee Chairman Sherwood Boehlert, R-N.Y., said his panel would investigate, as well.

"We're going to get together and fix this problem. We're going to launch shuttles again," NASA shuttle project manager Ron Dittmore said at a Houston news conference.

He added there will "certainly be a hold on future flights until we get ourselves established and find the root cause of the disaster."

NASA established a command post at Barksdale Air Force Base in Louisiana. The National Transportation Safety Board was sending experts in vehicle structures and systems to that base.

The independent panel was

assembled Saturday morning and began working right away, said Boehlert, whose House committee oversees NASA. He said he was confident the expert panel would find the cause of the disaster.

The investigations will review all the information that NASA collected as the Columbia began its descent for landing, then started breaking up more than 200,000 feet over Texas.

That information would include transmissions from the crew, as well as records from the shuttle's sensors, analysis of the debris and data from military, government and commercial satellites.

"We will be poring over that data 24 hours a day for the fore-

seeable future," Dittmore said.

FBI spokeswoman Angela Bell also said there was no indication of terrorism and that the FBI would have a minor role in the investigation, mainly helping collect evidence.

The independent investigation — similar to one after the 1986 explosion of the shuttle Challenger — is meant to assure the public and Congress that the cause of the disaster will be found and fixed.

The Federal Emergency Management Agency took the lead in responding to the Columbia disaster. The military's Northern Command, which handles operations inside the United States, was coordinating the Defense Department's response.

## Shuttle: Seven aboard Columbia

Continued from Page A1

of any surface-to-air missile, one senior government official said. Security was extraordinarily tight on this mission because Ramon, Israel's first astronaut, was among the crew members.

Television footage showed a bright light followed by white smoke plumes streaking diagonally across the brilliant sky. Debris appeared to break off into separate balls of light as it continued downward.

"We saw it coming across the sky real bright and shiny and all in one piece. We thought it was the sun shining off an airplane," said Doug Ruby, who was driving with his father along a Texas highway, headed for a fishing trip. "Then it broke up in about six pieces — they were all balls of fire — before it went over the tree line."

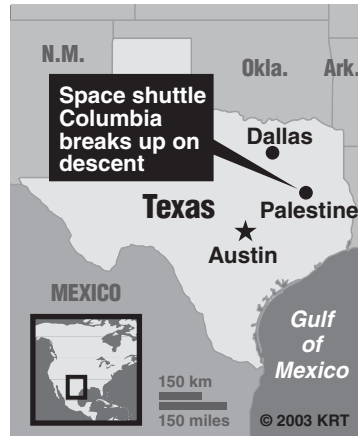
Pieces of the spacecraft were found in several east Texas counties and in Louisiana. Among the items found: An astronaut's charred patch and a flight helmet.

### REPORT OF HUMAN REMAINS

There was at least one report of human remains recovered — in Hemphill, Texas, near the Louisiana line, a hospital employee on his way to work reported finding what appeared to be a charred torso, thigh bone and skull on a rural road near what was believed to be other debris.

The FAA issued a notice to airmen because the National Weather Service radar picked up a debris cloud about 95 miles long and 13 to 22 miles wide over Lake Charles, La.

The Army's 1st Cavalry Division sent a helicopter search-and-



rescue task force from Fort Hood, Texas. NASA also asked members of the public to help in its search for debris, but warned people not to touch the pieces because they might be contaminated with toxic propellants.

The shuttle flight was the 113th in the shuttle program's 22 years and the 28th flight for Columbia, NASA's oldest shuttle which was built in 1981 at a cost of about \$1 billion.

The horrific end of shuttle mission STS-107 was a devastating blow to the nation's space program; the Challenger explosion led to a 2½-year moratorium on launches, and Saturday's accident could bring construction of the international space station to a standstill.

The shuttle delivers components of the space station to be installed; it also carries crews to and from the station. The three astronauts now on board the station could return to Earth at a moment's notice via a Russian vehicle attached to the space station.

Six shuttle flights had been planned for 2003 — five of them

to the space station. The next was scheduled for March 1.

"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," NASA Administrator Sean O'Keefe said.

Columbia had been scheduled to land at Kennedy Space Center at 9:16 a.m.

### NO HINT OF PROBLEMS

Shuttle program manager Ron Dittmore said "there was no indication of any impending threats to the vehicle." Then there was a loss of data from temperature sensors on the left wing, followed by a loss of data from tire pressure indicators on the left main landing gear.

The final radio transmission between Mission Control and the shuttle, at 9 a.m., gave little indication of any trouble.

Mission Control radios: "Columbia, Houston, we see your tire pressure messages, and we did not copy your last."

Columbia's commander, Rick Husband, calmly responds: "Roger, uh, huh ..."

For several seconds, the transmission goes silent.

Then, there is static.

Texas Sen. Kay Bailey Hutchison, in her Dallas neighborhood, said she heard a "boom, which I thought was the breaking of the sound barrier" — and it may have been just that, because the shuttle was traveling at 12,500 mph, 18 times the speed of sound.

On the edge of downtown Nacogdoches, 135 miles northeast of Houston, a National Guardsman stood watch over a steel rod with silver bolts that landed in the grass outside a yard. People streamed up to take photos of the debris.

Dentist Jeff Hancock said a metal bracket about a foot long had crashed through his office roof.

In 42 years of U.S. human spaceflight, there had never been an accident during the descent to Earth or landing.

Two hours after the shuttle had been expected to land, the giant screen at the front of Mission Control showed a map of the southwest United States and what should have been Columbia's flight path. The American flag next to the center's countdown clock was lowered to half-staff.

O'Keefe met with the astronauts' families, who had been waiting at the landing site for the shuttle's return. Six of the seven astronauts were married, and five had children.

The shuttle is essentially a glider during the hourlong decent from orbit toward the landing strip. It is covered by about 20,000 thermal tiles to protect against temperatures as high as 3,000



THE ASSOCIATED PRESS

NASA security workers remove the space shuttle Columbia flag from the flagpole at the Kennedy Space Center in Cape Canaveral, Fla., Saturday after Columbia broke up over Texas.

degrees.

### INSULATION PROBLEMS

During liftoff on Jan. 16, a piece of insulating foam from the shuttle's external fuel tank was believed to have fallen off and hit the same wing, though it wasn't clear if it caused it any damage.

Dittmore said Saturday that it was too early to tell if there was any connection between that incident at liftoff and the shuttle's destruction.

However, according to a Knight Ridder report, damage to the delicate space shuttle insulation — ceramiclike tiles and fluffy blankets — could cause a fatal problem. A hole in the insulation could allow the searing heat of re-entry to burn a hole into the shuttle and explode the hydrazine or onboard fuel cells. Or a hole could allow heat that would then trigger structural damage, such as the breaking off of a wing.

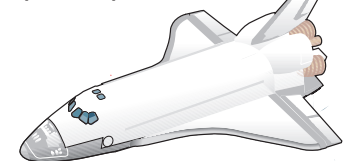
While some experts say the detached insulation is not unusual and is unlikely to cause serious damage, others say it is a viable possibility that caused the problem.

"If I was guessing, I would say it's a tile problem," said Norm Carlson, former shuttle operations chief at Kennedy Space Center. "They had some tile that was missing perhaps, and burned through and caused an explosion of fuel cell tanks or hydrazine

## NASA loses contact with shuttle

Space shuttle Columbia apparently broke apart in flames as it streaked over Texas toward its scheduled landing Saturday, killing all seven astronauts, six Americans and an Israeli.

Space Shuttle Columbia (OV-102)



**Crew on current mission:** Seven  
**Wing span:** 78 feet, 0.68 inches (23.79 m)

**Length:** 122 feet, 2 inches (37.24 m)

**Height:** 56 feet 8 inches (17.27 m)

**Orbital speed:** 17,600 mph (28,325 kph)

**Nominal touchdown speed:** 212-226 mph (341-363 kph)

### Features:

► Lifts off vertically with boosters and re-enters atmosphere after mission for unpowered aerodynamic landing on airfield

► Materials on outer skin are designed to perform a minimum of 100 missions, in which temperatures will range from -250°F (-156°C) in space to re-entry temperatures of nearly 3,000°F (1,648°C)

SOURCES: Associated Press; Jane's Information Group

AP

enough supplies to last through the end of June, he said. The Russian Space Agency said today's launch of a Progress cargo ship to the station would go forward as planned.

A Soyuz vehicle attached to the space station could bring the three astronauts onboard back to Earth at a moment's notice. But if the space agency's remaining shuttles are out of service for an extended period in the wake of Saturday's catastrophe, as seems likely, it could prove difficult to maintain the station's operations.

Columbia's crew had completed 80-plus scientific research experiments during its time in orbit.

"To have this happen with 15 minutes to go until it was over was just unbelievable," said Clark's brother, Daniel Salton. But in his sadness, he said he knew she was doing what she loved.

"I'm just so glad she got to get up to space and got to see it," he said, "because that had been a dream for a long time."

Just in the past week, NASA observed the anniversary of its only two other space tragedies, the Challenger explosion on Jan. 28, 1986, and the Apollo spacecraft fire that killed three on Jan. 27, 1967.

## Six Americans, one Israeli on shuttle crew

Space shuttle Columbia broke apart in flames as it returned to Earth Saturday morning, killing all seven astronauts on board. The crew included the first Israeli astronaut.



Clark

**Dr. Laurel Clark**  
Mission specialist  
Commander, U.S. Navy  
Racine, Wis.  
Married, one child  
Astronaut since 1996,  
first space mission



Anderson

**Michael P. Anderson**  
Payload commander  
Lieutenant Colonel,  
U.S. Air Force  
Born Dec. 25, 1959  
Plattsburgh, N.Y.  
Married  
Astronaut since 1994,  
previous mission to Russia's Mir  
space station in 1998



Husband

**Rick Husband**  
Commander  
Colonel, U.S. Air Force  
Born July 12, 1957  
Amarillo, Texas  
Married, two children  
Astronaut since 1994,  
previous mission on STS-  
96 Discovery, 1999



Brown

**David Brown**  
Mission specialist  
Captain, U.S. Navy  
Born April 16, 1956  
Arlington, Va.  
Astronaut since  
1996, first space  
mission



McCool

**William C. McCool**  
Pilot  
Commander, U.S. Navy  
Born Sept. 23, 1961  
San Diego  
Married  
Astronaut since 1996, first  
space mission



Chawla

**Kalpana Chawla**  
Mission specialist  
Aerospace engineer  
Karnal, India  
Astronaut since  
1994, previous  
mission as robotic  
arm operator on  
STS-87, 1997



Ramon

**Ilan Ramon**  
Payload specialist  
Colonel, Israel Air  
Force  
Born June 20, 1954  
Tel Aviv, Israel  
Married, four children  
Astronaut since 1997,  
first space mission

SOURCE: NASA

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