

This Day in History... February 1, 2003

Space Shuttle *Columbia* Disaster

On February 1, 2003, the space shuttle *Columbia* broke apart during reentry, killing all seven astronauts on board. The disaster stunned the nation and forced NASA to confront hard truths about risk, decision-making, and the future of human spaceflight.

The roots of *Columbia* reach back to the early 1970s, when NASA began designing a reusable spacecraft. Unlike earlier capsules, this new vehicle would launch vertically like a rocket and land horizontally like an airplane. The program aimed to reduce costs and increase access to space. The result was the Space Shuttle, a complex system made up of an orbiter, solid rocket boosters, and a large external fuel tank.

Columbia was the first shuttle to fly. It launched on April 12, 1981, exactly twenty years after the first human spaceflight by Yuri Gagarin. Commanded by John Young and piloted by Robert Crippen, the mission proved that a reusable, winged spacecraft could survive launch and reentry. *Columbia* was also the heaviest shuttle, built with extra structural reinforcement. That strength made it valuable for early test flights but less flexible than later orbiters.

NASA expected each shuttle to fly more than 100 missions. While that goal proved unrealistic, *Columbia* still had a long career. Over 22 years, it flew 27 missions and carried 160 different astronauts, some more than once. Its flights included major milestones. It carried the first four-person shuttle crew. It deployed the first commercial satellite from a shuttle. It later flew with six- and seven-person crews. It also hosted Spacelab, a pressurized laboratory used for science experiments in orbit.

Despite these successes, the shuttle system had known weaknesses. One major concern involved foam insulation on the external fuel tank. Pieces of foam had broken off during earlier launches and struck shuttle wings or heat tiles. Engineers documented the problem, but since no shuttle had been lost because of foam strikes, the risk became normalized.

On January 16, 2003, *Columbia* launched on mission STS-107 from Kennedy Space Center. The seven-member crew included commander Rick Husband, pilot William McCool, and mission specialists Michael Anderson, Kalpana Chawla, David Brown, Laurel Clark, and Israeli astronaut Ilan Ramon. The mission focused on scientific research. The crew conducted more than 80 experiments, many requiring continuous work in microgravity.

About 82 seconds after liftoff, a large piece of foam broke free from the external tank. It struck the leading edge of *Columbia*'s left wing at high speed. Some engineers suspected serious damage. They requested high-resolution images from military satellites to inspect the wing. Management denied the requests, believing the foam strike posed no threat and that nothing could be done even if damage existed.

The mission continued for 16 days. The crew remained unaware of the danger. On the morning of February 1, 2003, *Columbia* began reentering Earth's atmosphere. As the shuttle descended, superheated air entered a hole in the damaged wing. Internal sensors began failing. At 8:53 a.m. Eastern Time, mission control noticed unusual temperature readings. At 8:59 a.m., contact with the crew was lost. One minute later, *Columbia* broke apart over Texas.

Debris rained down across Texas, Arkansas, and Louisiana. Residents reported sonic booms and streaks of smoke across the sky. Recovery teams searched for months, collecting thousands of pieces of the shuttle. The *Columbia* Accident Investigation Board later concluded that the foam strike caused the disaster. It also cited deeper problems, including poor communication, flawed safety culture, and ignored warnings.



Space Shuttle Program
Stamp from Celebrate the
Century Sheet



The Space Achievement issue includes four stamps picturing *Columbia*.

The crew was honored with memorials across the country. A permanent memorial stands at Arlington National Cemetery. NASA Administrator Sean O'Keefe called the astronauts "heroes for our time and all times." President George W. Bush urged the nation to honor them with a "living memorial" by recommitting to space exploration.

The loss of *Columbia* grounded the shuttle fleet for more than two years. When flights resumed, safety procedures were stricter. Yet the tragedy ultimately led to the shuttle program's retirement.

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