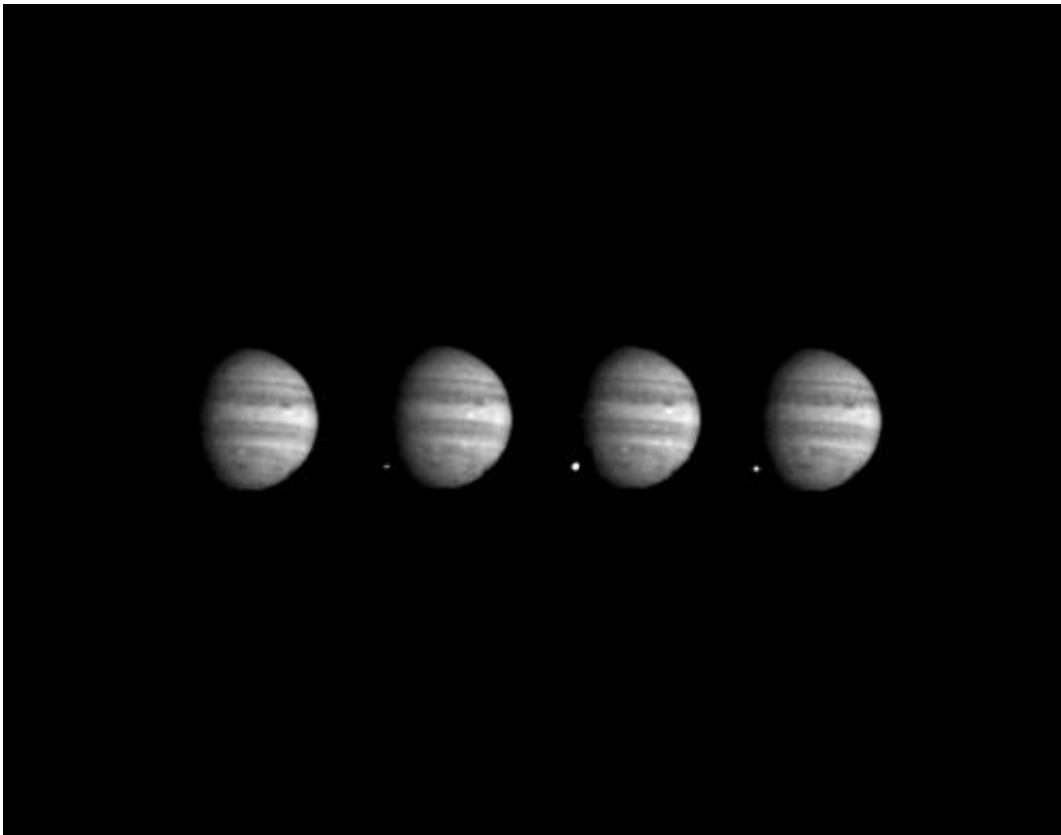


Looking back at the Jupiter crash 20 years later

July 16 2014, by Preston Dyches



These four images of Jupiter and the luminous night-side impact of fragment W of Comet Shoemaker-Levy 9 were taken by the Galileo spacecraft on July 22, 1994. The spacecraft was 238 million kilometers (148 million miles) from Jupiter at the time, and 621 million kilometers from Earth. The spacecraft was about 40 degrees from Earth's line of sight to Jupiter, permitting this direct view. The images were taken at intervals of 2 1/3 seconds, using the green filter (visible light). The first image, taken at an equivalent time to 8:06:10 Greenwich Mean Time (1:06 a.m. Pacific Daylight Time), shows no impact. In the next three images, a point of light appears, brightens so much as to saturate its picture

element, and then fades again, seven seconds after the first picture. The location is approximately 44 degrees south as predicted, dark spots to the right are from previous impacts. Jupiter is approximately 60 picture elements in diameter. Galileo tape-recorded most of its observations of the Shoemaker-Levy events during the second week of July 1994 and has since been playing the tape back selectively. Many more pictures and data from other instruments remain to be returned from the spacecraft's tape recorder. Playbacks will continue through January 1995. It is not yet certain whether the data relate to meteor bolides (the comet fragment entering Jupiter's atmosphere) or to the subsequent explosion and fireball. Once all the Galileo, Hubble Space Telescope and groundbased data are integrated, an excellent start-to-finish characterization of these remarkable phenomena will be available. The Galileo project, whose primary mission is the exploration of the Jupiter system in 1995 through 1997, is managed by the Jet Propulsion Laboratory for NASA's Office of Space Science. Credit: NASA/JPL

(Phys.org) —Twenty years ago, human and robotic eyes observed the first recorded impact between cosmic bodies in the solar system, as fragments of comet Shoemaker-Levy 9 slammed into the atmosphere of Jupiter.

Between July 16 and July 22, 1994, space- and Earth-based assets managed by NASA's Jet Propulsion Laboratory in Pasadena, California, joined an armada of other NASA and international telescopes, straining to get a glimpse of the historic event:

- NASA's Galileo spacecraft, still a year-and-a-half out from its arrival at Jupiter, had a unique view of fireballs that erupted from Jupiter's southern hemisphere as the comet fragments struck.
- NASA's Hubble Space Telescope, using the JPL-developed and -built Wide Field and Planetary Camera 2, observed the comet and the impact scars it left on Jupiter.

- The giant radio telescopes of NASA's Deep Space Network—which perform radio and radar astronomy research in addition to their communications functions—were tasked with observing radio emissions from Jupiter's radiation belt, looking for disturbances caused by comet dust.
- NASA's Voyager 2 spacecraft, then about 3.7 billion miles (6 billion kilometers) from Jupiter, observed the impacts with its ultraviolet spectrometer and a planetary radio astronomy instrument.
- The Ulysses spacecraft also made observations during the [comet impact](#) from about 500 million miles (800 million kilometers) away. Ulysses observed radio transmissions from Jupiter with its combined radio wave and plasma wave instrument.

The work of scientists in studying the Shoemaker-Levy 9 impact raised awareness about the potential for asteroid impacts on Earth and the need for predicting them ahead of time, important factors in the formation of NASA's Near-Earth Object Program Office. The NEO Program Office coordinates NASA-sponsored efforts to detect, track and characterize potentially hazardous asteroids and comets that could approach Earth.

Provided by NASA

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