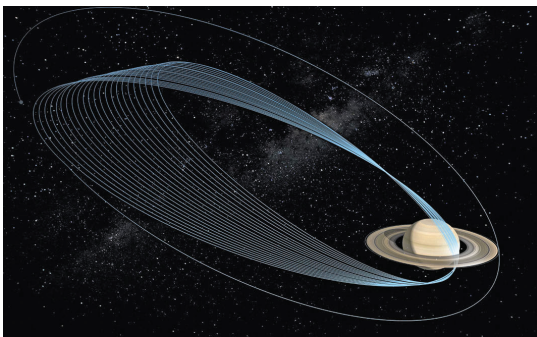




Cassini's Grand Finale

After nearly 20 years in space — 13 of those years orbiting Saturn — NASA's Cassini spacecraft begins the final chapter of its remarkable story of exploration: its Grand Finale.

Between April and September 2017, Cassini will undertake a daring set of orbits that is, in many ways, like a whole new mission. Following a final close flyby of Saturn's moon Titan, Cassini will leap over the planet's icy rings and begin a series of 22 weekly dives between the planet and the rings.



Cassini will end its mission with 22 daring loops passing through the gap between Saturn and its rings.

No other mission has ever explored this unique region. What we learn from these final orbits will help to improve our understanding of how giant planets — and planetary systems everywhere — form and evolve.

On the final orbit, Cassini will plunge into Saturn's atmosphere, sending back new and unique science until the very end. After losing contact with Earth, the spacecraft will burn up like a meteor, becoming part of the planet itself.

Daring Exploration

Cassini's Grand Finale is about so much more than the spacecraft's final dive into Saturn. That dramatic event is the capstone of six months of daring exploration and scientific discovery. (And those six months are the thrilling final chapter in a historic 20-year journey.)

At times, the spacecraft will skirt the very inner edge of the rings; at other times, it will skim the outer edges of the atmosphere. While the mission team is confident the risks are well understood, there could still be surprises. This kind of bold journey could only be undertaken at the end of the mission.

Unique Science

As Cassini plunges past Saturn, the spacecraft will collect some incredibly rich and valuable information that was too risky to obtain earlier.

- The spacecraft will make detailed maps of Saturn's gravity and magnetic fields, revealing how the planet is arranged internally, and possibly helping to solve the irksome mystery of just how fast Saturn is rotating.
- The final dives will vastly improve our knowledge of how much material is in the rings, bringing us closer to understanding their origins.
- Cassini's particle detectors will sample icy ring particles being funneled into the atmosphere by Saturn's magnetic field.
- Its cameras will take amazing, ultra-close images of Saturn's rings and clouds.



No spacecraft has ever ventured into the region between Saturn and its rings.

NASAfacts

Discoveries to the End

Cassini's final images will be sent to Earth several hours before its final plunge, but even as the spacecraft makes its fateful dive into the planet's atmosphere, it will send home new data in real time. Key measurements will come from its mass spectrometer, which will sample Saturn's atmosphere, and reveal clues about its composition until contact is lost.

data revealed their potential to contain habitable — or at least “prebiotic” — environments.

In order to avoid the unlikely possibility of Cassini someday colliding with one of these moons, NASA has chosen to safely dispose of the spacecraft in the atmosphere of Saturn. This will ensure that Cassini cannot contaminate any future studies of habitability and potential life on these moons.



The spacecraft will transmit science data as it enters Saturn's atmosphere.

While it's always sad when a mission comes to an end, Cassini's final plunge is a truly spectacular finish for one of the most scientifically rich voyages ever undertaken in our solar system. From its launch in 1997 to the Grand Finale of 2017, the Cassini-Huygens mission has racked up a remarkable list of achievements.

Key Dates (in Pacific Daylight Time)

| | |
|-------------------------------|--------------|
| Final targeted flyby of Titan | April 21 |
| Grand Finale orbits begin | April 22 |
| First Grand Finale dive | April 26 |
| Final plunge into Saturn | September 15 |

Why End the Mission?

As of June 30, 2017 (PDT), Cassini will have spent 13 years in orbit around Saturn, following a seven-year journey from Earth. The spacecraft is running low on the rocket fuel used for adjusting its course. If left unchecked, this situation would eventually prevent mission operators from controlling the course of the spacecraft.

Two moons of Saturn, Enceladus and Titan, have captured news headlines over the past decade as Cassini

The Jet Propulsion Laboratory, a division of the California Institute of Technology, manages the Cassini mission for the National Aeronautics and Space Administration (NASA). Cassini is a cooperative mission of NASA, the European Space Agency and the Italian Space Agency, with participation by hundreds of scientists and engineers from Europe and the U.S.

For more information and images, visit:
saturn.jpl.nasa.gov/grandfinale

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JPL 400-1654 03/17

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