

NASA's Dawn spacecraft moves in on dwarf planet Ceres

March 6 2015, byAlicia Chang



This Feb. 19, 2015 file image provided by NASA shows the dwarf planet Ceres, taken by the space agency's Dawn spacecraft from a distance of nearly 29,000 miles (46,000 kilometers). On Friday, March 6, 2015, NASA's Dawn spacecraft



arrives at the mysterious dwarf planet located in the asteroid belt between Mars and Jupiter after a nearly eight-year journey. Dawn, which previously visited Vesta, also in the asteroid belt, has already beamed back images of Ceres as it closes in. (AP Photo/NASA/JPL-Caltech/UCLA/MPS/DLR/IDA, File)

The largest celestial body in the asteroid belt between Mars and Jupiter welcomes its first visitor Friday.

NASA's Dawn spacecraft was due to slip into orbit around Ceres for the first exploration of a dwarf planet. Unlike other orbit captures that require thruster firings to slow down, the latest event is ho-hum by comparison, unfolding gradually and automatically.

Since Dawn is out of contact with Earth during the encounter, flight controllers won't receive confirmation until hours later.

"The real drama is exploring this alien, exotic world," said mission chief engineer Marc Rayman at the NASA Jet Propulsion Laboratory, which manages the \$473 million mission.

Once circling Ceres, Dawn will spend the next 16 months photographing the icy surface to determine whether it's active today.

Ceres is the last and final stop for Dawn, which launched in 2007 on a voyage to the main <u>asteroid belt</u>, a zone littered with rocky leftovers from the formation of the sun and planets some 4.5 billion years ago.

Dawn earlier spent a year at Vesta exploring the Arizona-sized asteroid and sending back stunning close-ups of the lumpy surface before cruising onto the Texas-sized Ceres.



The double trips are made possible by Dawn's ion propulsion engines, which provide gentle yet constant acceleration and are more efficient than conventional thrusters.

As Dawn approached Ceres, it beamed back puzzling images revealing a pair of shiny patches inside a crater—signs of possible ice or salt.

Scientists hope to get a better glimpse when the spacecraft spirals closer to the surface to study whether previously spotted plumes of water vapor continue to vent.

Dwarf planets lately have become the focus of exploration.

This summer, another NASA spacecraft—New Horizons—is set to make the first visit to Pluto, which was demoted to <u>dwarf planet</u>.

Dawn almost never made it out to the inner solar system. The mission endured funding-related project cancellations and launch delays before it received the green light to fly.

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