

# Dawn captures first image of nearing asteroid

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This image shows the first, unprocessed image obtained by NASA's Dawn spacecraft of the giant asteroid Vesta in front of a background of stars. Image credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA

(PhysOrg.com) -- NASA's Dawn spacecraft has obtained its first image of the giant asteroid Vesta, which will help fine-tune navigation during its approach. Dawn is expected to achieve orbit around Vesta on July 16,

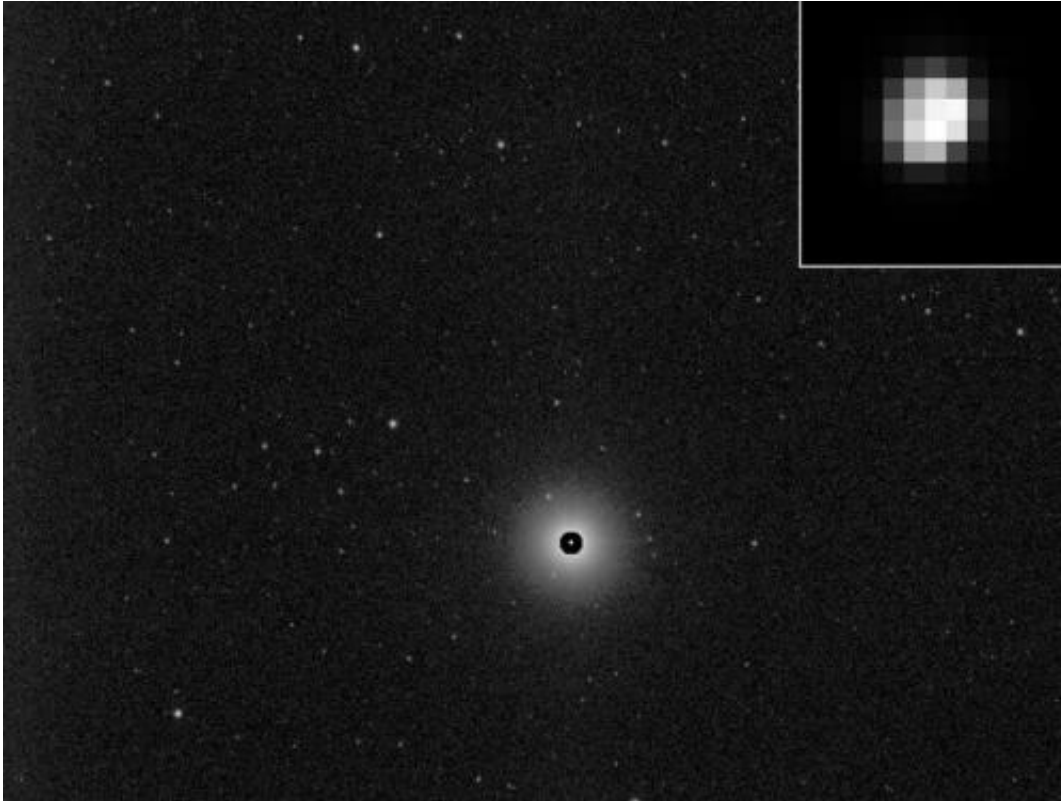
when the asteroid is about 188 million kilometers (117 million miles) from Earth.

The image from Dawn's framing cameras was taken on May 3 when the spacecraft began its approach and was approximately 1.21 million kilometers (752,000 miles) from Vesta. The [asteroid](#) appears as a small, bright pearl against a background of stars. Vesta is also known as a [protoplanet](#), because it is a large body that almost formed into a planet.

"After plying the seas of space for more than a billion miles, the Dawn team finally spotted its target," said Carol Raymond, Dawn's deputy principal investigator at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "This first image hints of detailed portraits to come from Dawn's upcoming visit."

Vesta is 530 kilometers (330 miles) in diameter and the second most massive object in the asteroid belt. Ground- and space-based telescopes obtained images of the bright orb for about two centuries, but with little surface detail.

Mission managers expect Vesta's gravity to capture Dawn in orbit on July 16. To enter orbit, Dawn must match the asteroid's path around the sun, which requires very precise knowledge of the body's location and speed. By analyzing where Vesta appears relative to stars in framing camera images, navigators will pin down its location and enable engineers to refine the spacecraft's trajectory.



This image, processed to show the true size of the giant asteroid Vesta, shows Vesta in front of a spectacular background of stars. Image credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA

Dawn will start collecting [science data](#) in early August at an altitude of approximately 1,700 miles (2,700 kilometers) above the asteroid's surface. As the spacecraft gets closer, it will snap multi-angle images, allowing scientists to produce [topographic maps](#). Dawn will later orbit at approximately 200 kilometers (120 miles) to perform other measurements and obtain closer shots of parts of the surface. Dawn will remain in orbit around Vesta for one year. After another long cruise phase, Dawn will arrive in 2015 at its second destination, Ceres, an even more massive body in the asteroid belt.

Gathering information about these two icons of the [asteroid belt](#) will

help scientists unlock the secrets of our solar system's early history. The mission will compare and contrast the two giant bodies shaped by different forces. Dawn's science instruments will measure surface composition, topography and texture. Dawn will also measure the tug of gravity from Vesta and Ceres to learn more about their internal structures. The spacecraft's full odyssey will take it on a 5-billion-kilometer (3-billion-mile) journey, which began with its launch in September 2007.

Dawn's mission to Vesta and Ceres is managed by JPL for NASA's Science Mission Directorate in Washington. Dawn is a project of the directorate's Discovery Program, managed by NASA's Marshall Space Flight Center in Huntsville, Ala.

Provided by JPL/NASA

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