

## MYSTERIOUS BRIGHT SPOT ON CERES

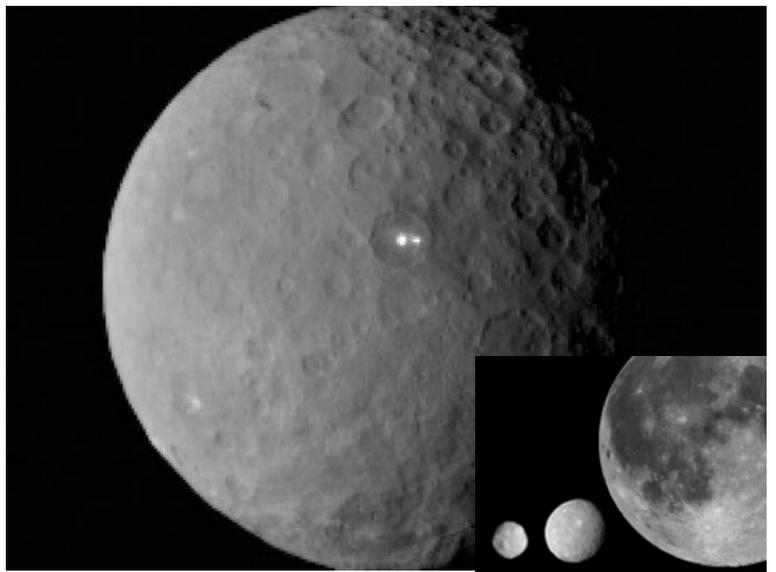
With the Dawn spacecraft just one week from its Ceres encounter, the dwarf planet's strange bright spot is revealed to have a dimmer companion. The most recently released images of the dwarf planet Ceres from NASA's Dawn spacecraft reveal that a mysterious bright spot – a stand out in previous images – lies close to yet another bright area. Both bright spots appear to lie within the walls of a crater on Ceres. The spacecraft acquired the image above on February 19, 2015 at a distance of 46,000 kilometres from Ceres, which is the largest and most massive object in the main asteroid belt, between the orbits of Mars and Jupiter. Dawn is closing in on Ceres now, and will reach the Texas-sized dwarf planet, never before visited by a spacecraft, on Thursday March 6, 2015.

**What are these bright spots on Ceres?** Scientists aren't sure. Andreas Nathues at the Max Planck Institute for Solar System Research, said: The brightest spot continues to be too small to resolve with our camera, but despite its size it is brighter than anything else on Ceres. This is truly unexpected and still a mystery to us. Chris Russell, principal investigator for the Dawn mission, said: Ceres' bright spot can now be seen to have a companion of lesser brightness, but apparently in the same basin. This may be pointing to a volcano-like origin of the spots, but we will have to wait for better resolution before we can make such geologic interpretations.

The images will continuously improve as the spacecraft approaches Ceres and finally is gently captured into orbit around it. As Dawn spirals closer to Ceres' surface during its 16-month study of the dwarf planet, the spacecraft will deliver images and other data to the science team investigating the nature and composition of the dwarf planet – including the nature of the craters and bright spots that are coming into focus.

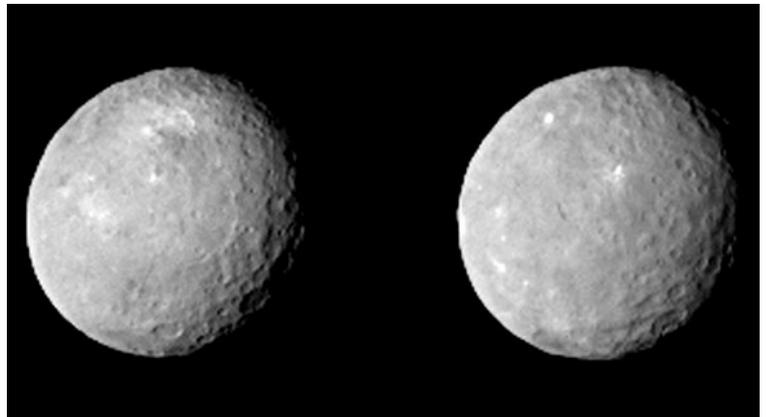
**The Dawn mission was designed to study two large bodies in the asteroid belt in order to answer questions about the formation of the Solar System,** as well as to test the feasibility of a new ion drive. Ceres and Vesta were chosen as two contrasting protoplanets, the first one apparently "wet" (i.e. icy and cold) and the other "dry" (i.e. rocky), whose accretion was terminated by the formation of Jupiter. The two bodies provide a bridge in scientific understanding between the formation of rocky planets and the icy bodies of the Solar System, and under what conditions a rocky planet can hold water.

Ceres is a dwarf planet whose mass comprises about one-third of the total mass of the bodies in the asteroid belt, and whose spectral characteristics suggest a composition similar to that of a water-rich carbonaceous chondrite. AK from Wikipedia



This image was taken by NASA's Dawn spacecraft of dwarf planet Ceres on Feb. 19 from a distance of 46,000 kilometres. It shows a brightest spot on Ceres and a dimmer companion, which apparently lies in the same basin.

Insert: True-to-scale comparison of Vesta, Ceres, and Earth's moon.



NASA's Dawn spacecraft acquired these two views of Ceres on February 12 from a distance of 83,000 kilometres. The view changed as the dwarf planet rotated. At the time of capture, this was part of a series of the highest-resolution images of Ceres ever taken

