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# Mercury

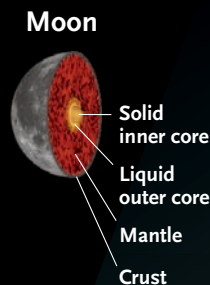
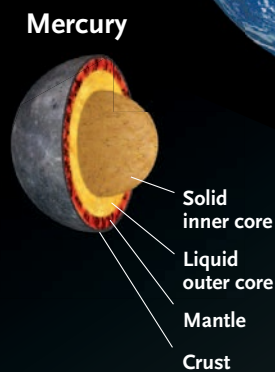
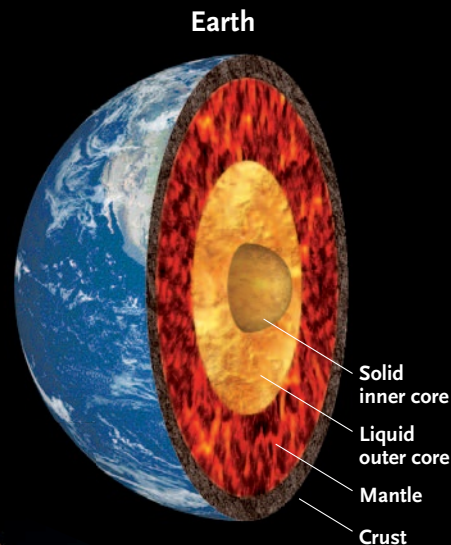
## Meet the planet nearest our Sun

The innermost planet has challenged astronomers for centuries. Its proximity to the Sun limits ground-based telescopic observations, and when NASA's Mariner 10 spacecraft made three close passes during the 1970s, the little planet appeared to have a landscape that strongly resembled the Moon's.

But Mercury is no Moon. NASA's Messenger spacecraft, in orbit around the Iron Planet since March 2011, has recently finished its initial global survey. The work reveals that this wacky world has a unique, complex history all its own.

The survey images show a marvelous world of ancient volcanic floods and mysteriously dark terrain (*S&T*: April 2012, page 26). Plains — mostly volcanic — cover about 30% of the surface. And as radar images have long suggested, subsurface water ice lies tucked inside some polar craters. Temperatures in the coldest craters never top 50° above absolute zero, making Mercury both one of the hottest and coldest bodies in the solar system.

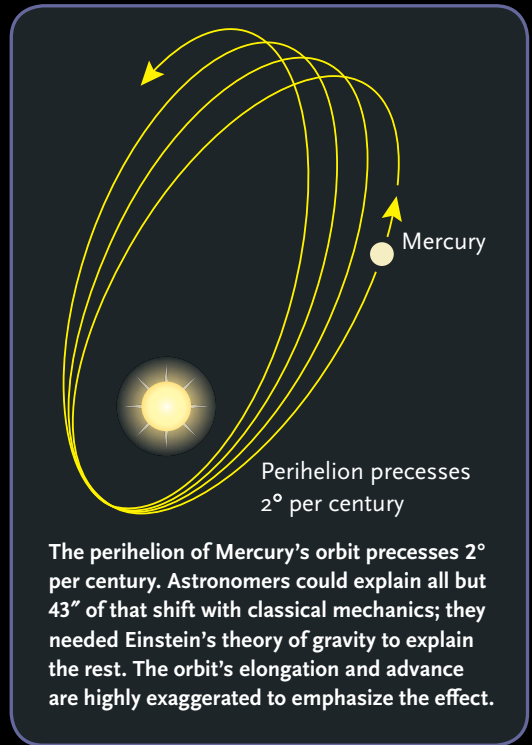
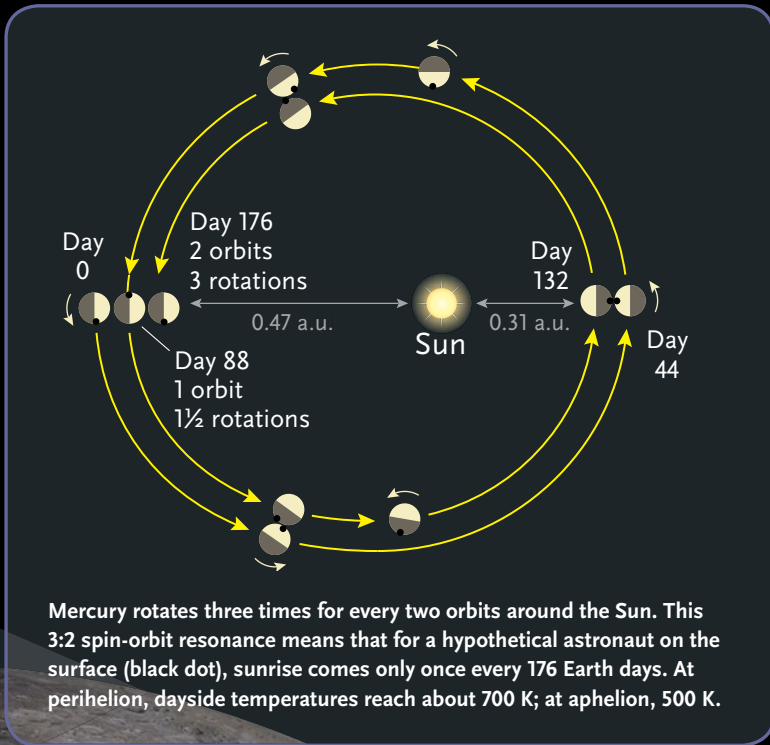
To celebrate Messenger's completed Mercury survey, we've worked with the USGS to produce a labeled map of the innermost planet, which you'll find on the flip side of these pages. The labels on this map are a subset of those that appear on our new Mercury globe. Many names honor artists, writers, and musicians, including Bach and Copland. Even Disney and Seuss have craters.



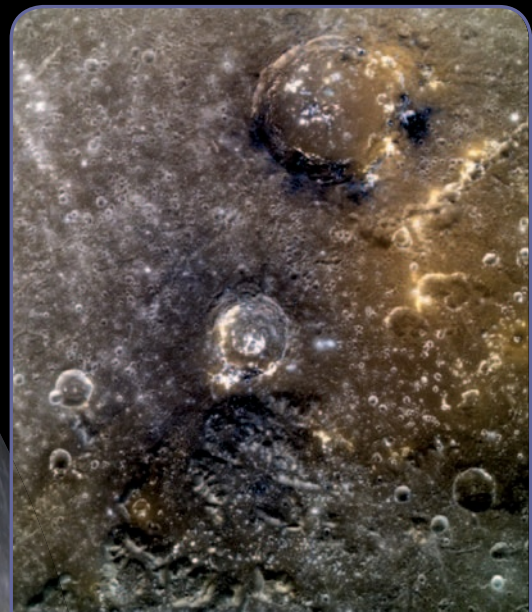
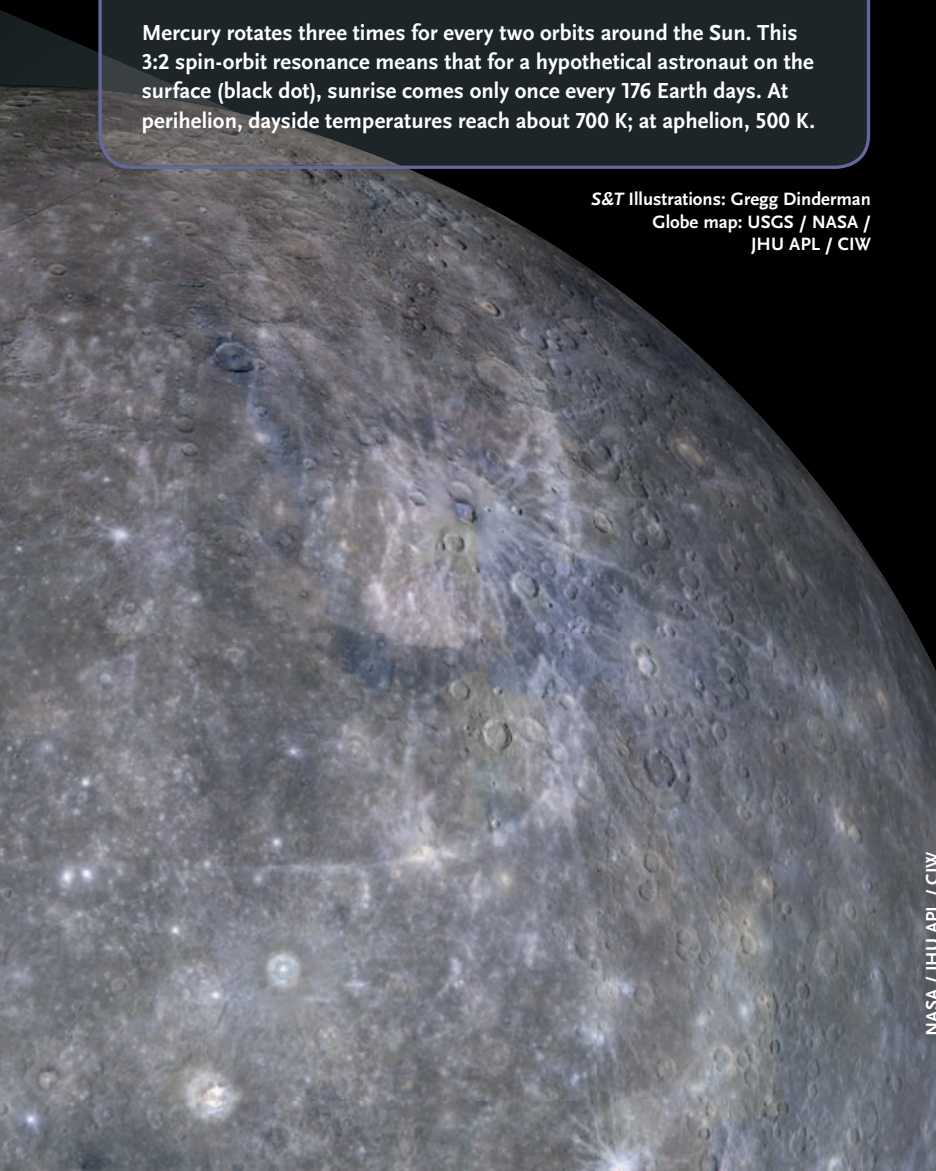
Prokofiev Crater's north-facing rim and interior remain in perpetual shadow, making it a safe haven for water ice. Watch an animation of how illumination changes over the course of one Mercury day at [skypub.com/prokofiev](http://skypub.com/prokofiev).

NASA GSFC / MIT / JHU APL / CIW

# Mercury's Strange Orbital Dance



S&T Illustrations: Gregg Dinderman  
Globe map: USGS / NASA /  
JHU APL / CIW

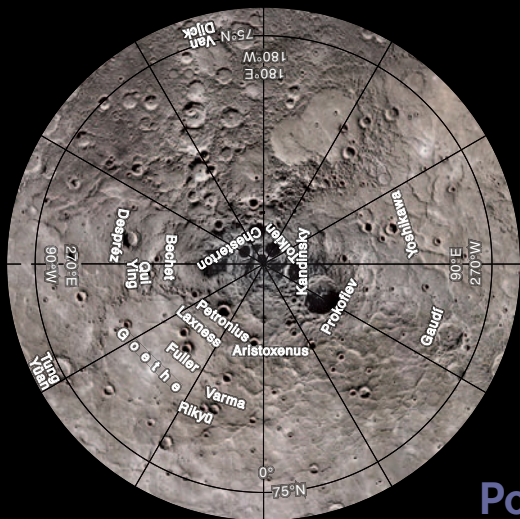


This Messenger image shows mysterious "low-reflectance material" excavated by craters near the eastern edge of Caloris Basin. The reddish deposits appear to be volcanic in origin. The orbiter took this composite image using all 11 color filters of its wide-angle camera.

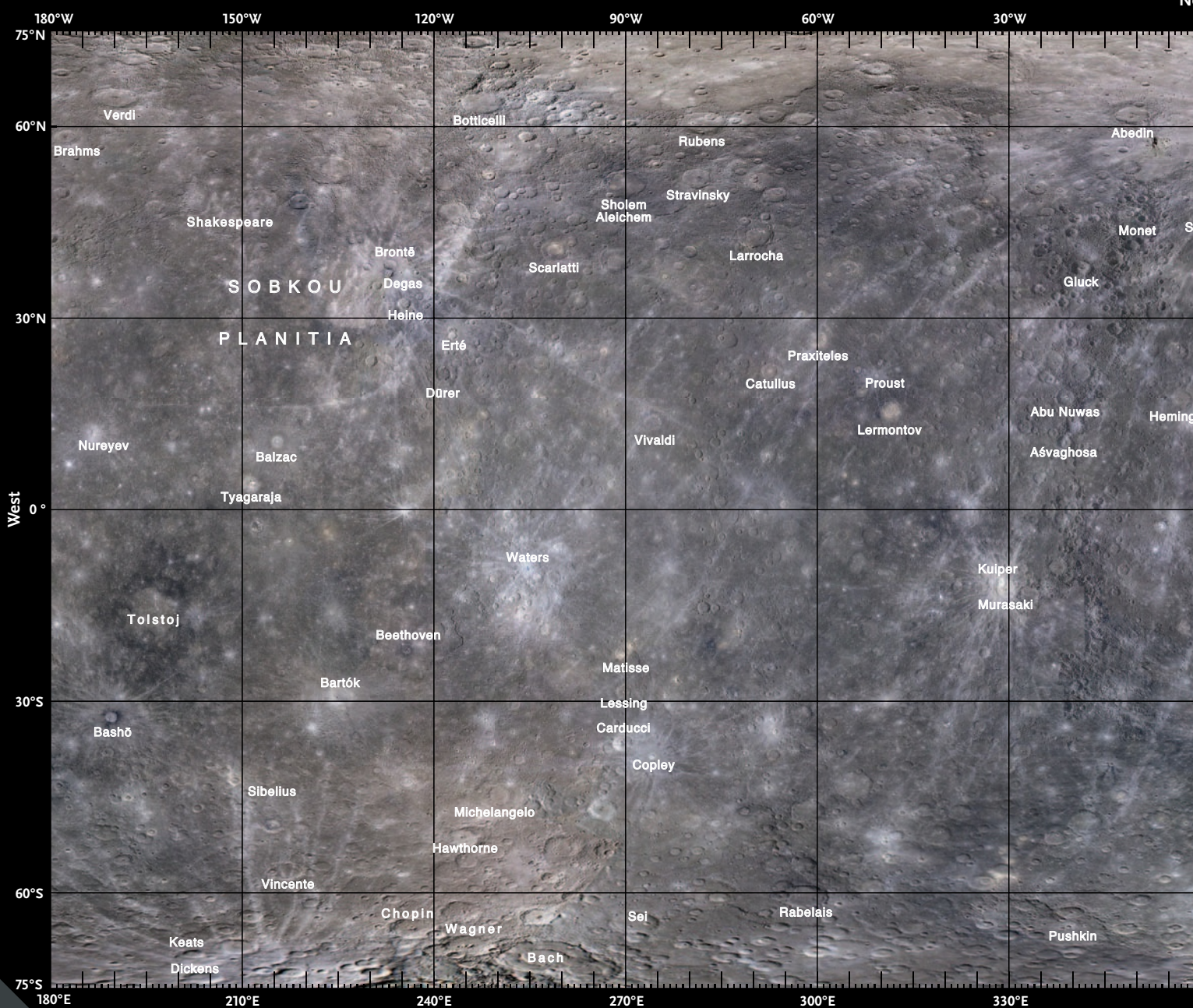
NASA / JHU APL / CIW

# Mercury

Due to Mercury's unique 3:2 spin-orbit resonance, NASA's *BepiColombo* mission can only see a portion of the entire globe in daylight conditions. Mission scientists combined these observations into a global map with a resolution of roughly 550 feet (170 m) per pixel — consisting of images taken through blue (430 nm), red (670 nm), and ultraviolet (415 nm) filters to highlight subtle color differences. Note: regions poleward of 75°



North  
Polar Region



# 's Surface

s Messenger spacecraft took nearly two years to record the  
 bined thousands of images to create a monochrome base  
 l. Then they merged it with a second, less detailed mosaic  
 (750 nm), and near-infrared (1000 nm) filters — to bring  
 latitude appear only in the polar maps.

## South Polar Region

