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Sunset Planet Alert

03.31.2010

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March 31, 2010: The solar system's innermost planets are about to put on a beautiful show.

This week, Mercury is emerging from the glare of the sun and making a beeline for Venus. By week's end, the two planets will be just 3° apart, an eye-catching pair in the deep-blue twilight of sunset.

The best nights to look are April 3rd and 4th. Go outside at the end of the day and face west. Venus pops out of the twilight first, so bright it actually shines through thin clouds. Mercury follows, just below and to the right: [sky map](#).

Right: Venus and Mercury converging over Saitama, Japan, on March 30th. Photo credit: Mitsuo Muraoka.



Venus is an old friend to most sky watchers; Mercury, less so. The first planet from the sun spends most of its time wrapped in painful sunlight. Seeing it so easily, and in the beautiful company of Venus no less, is a rare treat indeed. The next apparition this good won't come until Nov. 2011.

By that time, however, we'll have much better view of Mercury *all the time*.

NASA's MESSENGER probe is en route to Mercury now, and in March of 2011 it will become the first spacecraft to orbit the planet. During a year-long science mission, MESSENGER will beam back a stream of high-resolution pictures and data obtained using seven instruments designed to operate in the extreme environment near the Sun. This kind of coverage of planet #1 is unprecedented.

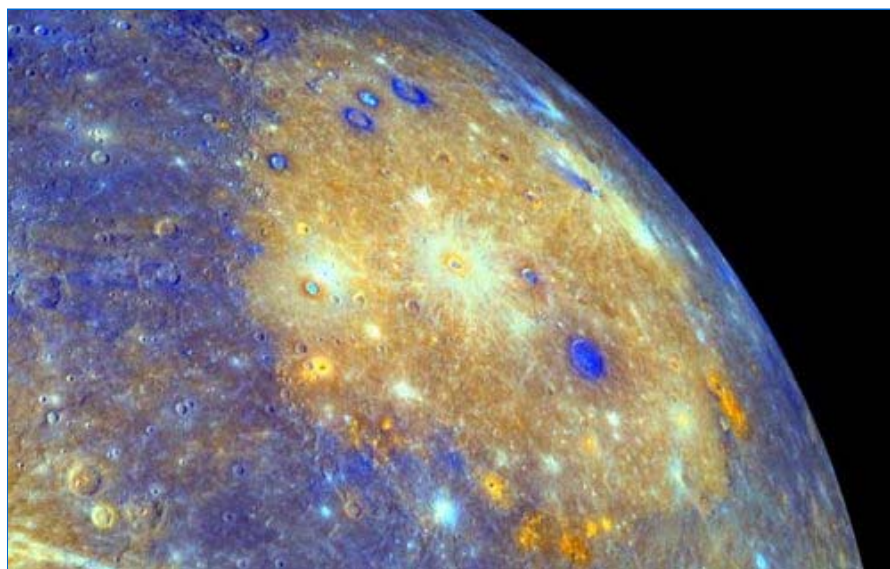
Three flybys of Mercury by MESSENGER in 2008 and 2009 have already revealed much to be excited about.

For instance, Mercury has a long, comet-like tail, which whips around the sun in synch with the planet's elliptical orbit, waxing and waning with Mercury's distance from the sun. The tail is made of Mercury itself. Atoms and molecules are knocked off the planet's surface by solar radiation, solar wind bombardment and meteoroid vaporization, forming the stuff of Mercury's thin, elongated atmosphere (or "exosphere"). Researchers say it's the most active planetary exosphere in the whole solar system.

MESSENGER has also found that Mercury's magnetic field is "alive." It is generated by an active dynamo inside Mercury, probably akin to the magnetic dynamo of our own planet. Buffeted relentlessly by solar wind, Mercury's magnetosphere is a hotbed of magnetic reconnection, the same basic physical process that energizes auroras on Earth



and sparks solar flares on the sun. Mercury probably has its own brand of geomagnetic activity waiting to be discovered when MESSENGER goes into orbit.



Above: A color-enhanced image of Mercury's giant Caloris basin. Orange hues just inside the basin rim are probably volcanic vents. This picture was taken by MESSENGER during a Jan. 14, 2008, flyby. Courtesy of Science/AAAS [[Larger image](#)] [[more](#)]

Even Mercury's pitted landscape is interesting. Giant Caloris basin dwarfs almost every other crater in the solar system, and it is ringed by volcanic vents that paint the landscape with subtle but lovely colors. Towering scarps tell a tale of a "shrinking planet" wrinkled in response to past contractions. And the whole globe is dotted by an amazing variety of craters with names such as Rembrandt and Picasso.

Mercury is definitely worth a look. The show begins at sunset.

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The MESSENGER project is the seventh in NASA's Discovery Program of low-cost, scientifically focused missions. The Johns Hopkins University Applied Physics Laboratory of Laurel, Md., designed, built and operates the spacecraft and manages the mission for NASA's Science Mission Directorate in Washington. Science instruments were built by the Applied Physics Laboratory; Goddard; the University of Michigan in Ann Arbor; and the University of Colorado in Boulder. GenCorp Aerojet of Sacramento, Calif., and Composite Optics Inc. of San Diego provided the propulsion system and composite structure.



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Last Updated: June 9, 2005

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