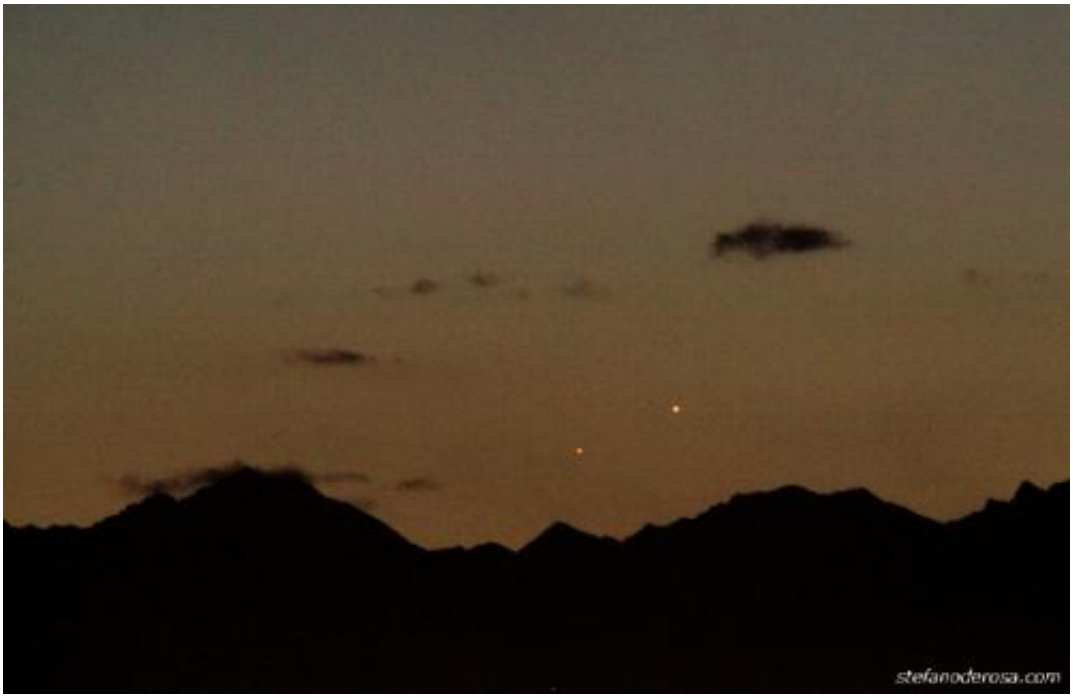
A fascinating 'new' planet

February 11 2013, by Dr. Tony Phillips



Mars and Mercury setting together over the Alps on Feb. 8th. Credit: Stefano De Rosa of Turin, Italy

NASA has recently discovered a very strange planet. Its days are twice as long as its years. It has a tail like a comet. It is hot enough to melt lead, yet capped by deposits of ice. And to top it all off ... it appears to be pink.

The planet is Mercury.

Of course, astronomers have known about Mercury for thousands of years, but since NASA's MESSENGER probe went into orbit around Mercury in 2011, researchers feel like they've been discovering the innermost planet all over again. One finding after another has confirmed the alien character of this speedy little world, which you can see this week with your own eyes.

Mercury is emerging from the glare of the sun for a beautiful two-week apparition during the month of February 2013. The show begins about a half hour after sunset. Scan the horizon where the sun's glow is strongest and, if the sky is clear, Mercury should pop out of the twilight, a bright pink pinprick of light. Mercury itself is not actually pink, but it is often colored so by the rosy hues of the setting sun.

As February unfolds, Mercury will rise higher in the sunset sky, brightening as it ascends. From February 11th through 21st, the "pink planet" will be visible for as much as an hour after sunset. February 11th is a date of special interest: a slender crescent Moon will appear straight above Mercury, providing guidance for novice sky watchers.

Mercury circles the sun about three times closer than Earth does, rotating just three times on its axis every two Mercury-years. This slow-spin under the solar inferno bakes Mercury's surface bone-dry and raises its daytime temperature to 425 degrees Celsius, hot enough to melt lead. This would seem an unlikely place to find deposits of ice, yet that is what the MESSENGER probe recently confirmed: Mercury has enough ice at its poles to encase Washington DC with a layer of frozen water two miles thick.

Ice on Mercury is possible because the tilt of planet's spin axis is almost zero—less than one degree—so there are pockets at the planet's poles that never see sunlight. Shadowed areas at each end of the heavily-cratered planet turn out to be cold enough to freeze and hold water.

MESSENGER found something else: Much of Mercury's ice is coated with a mysterious dark substance. Researchers don't know exactly what it is, but they suspect it is a mix of complex organic compounds delivered to Mercury by the impacts of asteroids and comets.

In some ways, Mercury itself resembles a comet with a long tail. NASA's twin STEREO probes, on a mission to observe the sun, spotted Mercury's tail in 2008. The MESSENGER probe has since flown through it. The tail appears to be made of material blown off Mercury's surface by exposure to solar flares and the solar wind at point-blank range. The pressure of sunlight pushes the tail in the anti-sunward direction, just like the tail of a comet.

With the sun currently approaching the maximum of its 11-year activity cycle, Mercury is getting hit by the stormiest space weather in years. This is a great time for MESSENGER to study the processes that turn Mercury into a "comet-planet."

Mercury is a strange planet, indeed. When the sun goes down tonight, step outside and see for yourself.

Provided by NASA