

PHM Planetarium & Air/Space Museum

Transit of Mercury

The PHM Planetarium celebrated the 2006 [transit of Mercury](#), when the silhouette of Mercury was visible by day as it passes directly between the earth and the sun! Images of the event are at [mercury-images.htm](#).

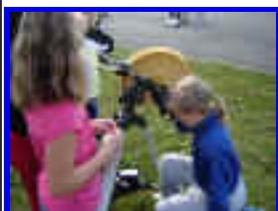
- **Tuesday, November 7, at 6:30 p.m.**

A special program in the planetarium conveyed the significance of the transit, what observers can expect to see, and insight into the planet closest to the sun. Three transit of Mercury artifacts ([below](#)) were on display.

- **Wednesday, November 8, from 1:00 p.m. to about 5:00 p.m.**

Because Mercury's apparent diameter is so small, seeing the transit requires a magnified view through a proper solar filter. The planetarium and local amateur astronomers had a variety of solar-filtered telescopes available for the public to view the transit live. All programs were free.

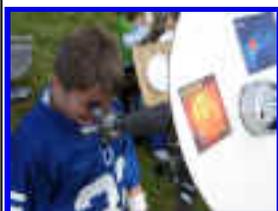
Thank you, Lou, Linda, and Nick, for your support with the visiting observers.



Hydrogen-alpha telescope shows solar prominences and surface turbulence.



8-inch reflector telescope has white light filter to show Mercury and sunspots.



80mm reflector telescope offers viewing through white light filter.



Sunspotter projects solar image onto white surface.



Orange C-8 scope is atop a convenient German equatorial mount.



Rear screen projection allows multiple observers around one telescope

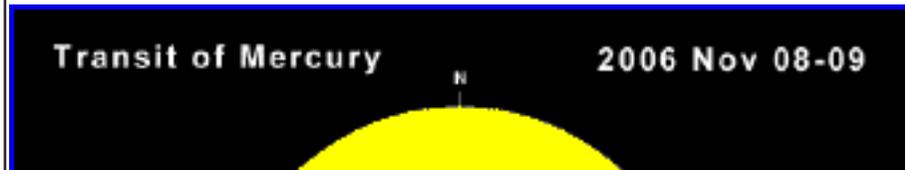


<http://www.spaceweather.com/mercury/index.php>

Bring your art supplies so you can enter your photo or drawing of the transit of Mercury as seen through a Hydrogen-alpha telescope in this contest. Submissions are due November 13, 2006. [AstroCamp at YMCA Camp Eberhart](#) will kindly provide the H-alpha telescope used outside the PHM Planetarium.

First contact:
2:12:24
p.m. EST

Mercury
Azimuth:
207° 47.38'
Mercury
Altitude:
26° 41.22'





20 41.52
 Hour
 Angle: 1h
 43m 36.7s
 Right
 Ascension
 (J2000):
 14h
 55.40m
 Declination
 (J2000):
 116° 52.06'

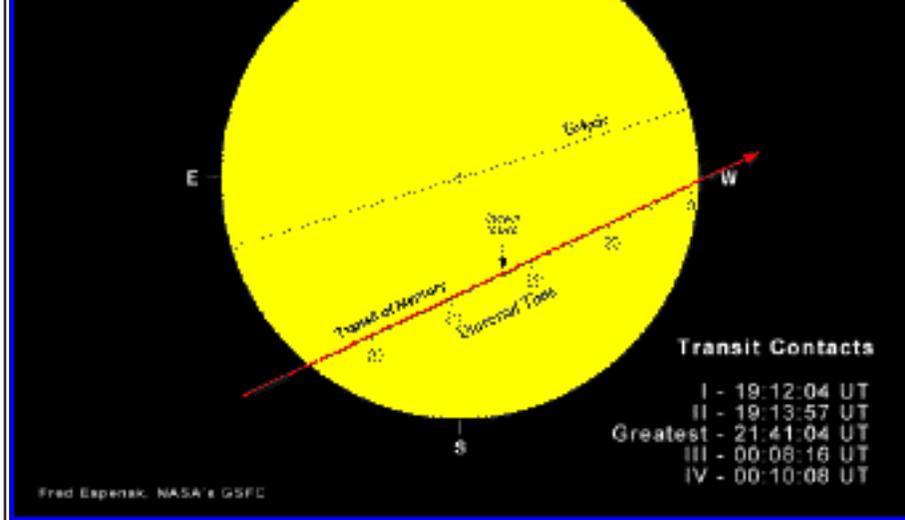


Diagram courtesy of Fred Espenak.

The PHM Planetarium & Air/Space Museum will have three transit of Mercury items on display:

-*Atlas Coelestis, Plate 7* by Johann Doppelmayr, 1742;

-*Durchgang de Mercur* by Wilhelm Nitschke, ca.1852;

-*Reports on Telescopic Observations of the Transit of Mercury, May 5-6, 1878* by the US Naval Observatory.



In 1742, Johann Doppelmayr features transits of Mercury and Venus in [Atlas Coelestis](#) while describing phenomena associated with the inferior planets (Plate 7).



[doppel-mercury.JPG](#)

Doppelmayr illustrates the path of Mercury across the face of the sun for the November 6, 1720, transit of Mercury.



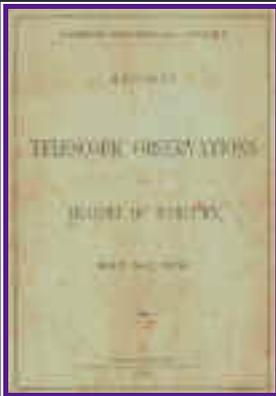
[Doppel1448.jpg](#)

Inset shows personified Mercury and Venus passing between the Earth and the Sun, depicting the circumstances that create a transit.



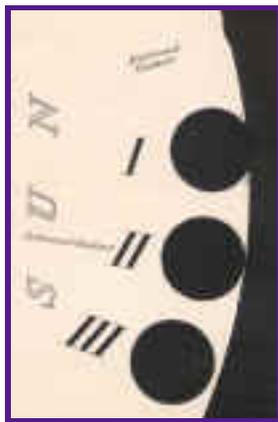
[../mercury_transit_096-med.JPG](#)

Durchgang de Mercur by Wilhelm Nitschke, ca.1852.



[mercury1878cover.jpg](#)

Reports on Telescopic Observations of the Transit of Mercury, May 5-6, 1878. Includes individual reports from Asaph Hall, William Harkness, J.R. Eastman, Edward S. Holden, and Dr. Henry Draper.



[mercury-1878fig2.jpg](#)

Because "the cusps will appear undulating and diffused; and for a few seconds it will be doubtful whether contact has or has not taken place...the best the observer can do is watch for the phase represented by disk I...The moment of true contact is that at which the undulation of true sunlight across the dark space is just beginning."



[mercury-draper_obs.jpg](#)

Arrangement of Dr. Henry Draper's equatorial-room and of the instruments at Dr. Draper's Observatory.



[mercury-irradiation.jpg](#)

The [black drop effect](#) is attributed to "a very variable amount of irradiation of bright images on the retina," though with caveats.

During the transit, Mercury appears as a tiny dot slowly gliding across the face of the sun. In 1716, young astronomer Edmund Halley witnessed a transit of Mercury and recognized that a transit of an inferior planet could be used mathematically to measure the distances of the planets from the sun. Decades later he advocated using a transit of Venus to quantify the size of the solar system. See www.transitofvenus.org/sitemap.htm for more details about these rare celestial alignments.

Located at Bittersweet School just north of Penn High School, the planetarium featured extensive [programs and observing opportunities](#) for the 2004 transit of Venus. The next transit of Venus will be in [June 2012](#); the next transit of Mercury will be in May 2016.

www.transitofvenus.org

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