



Durchgang de Mercur
Wilhelm Nitschke, ca.1852

2006 Transit of Mercury



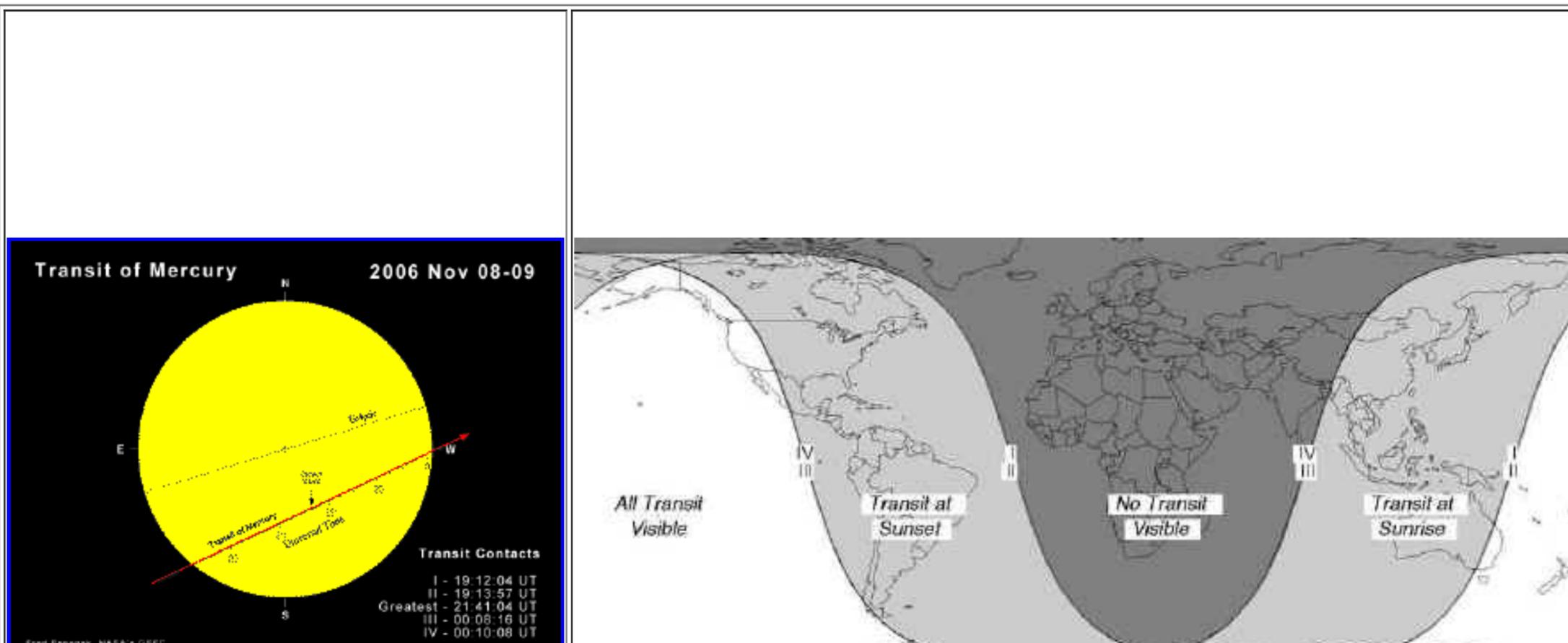
On Wednesday, November 8, 2006, a transit of Mercury was visible in the afternoon and evening for much of the North America. It began around 2:12 p.m. EST and continued until 7:10 p.m. EST, though [sunset occured before](#) then for many viewers. During the transit, the silhouette of Mercury was visible by day as the innermost planet passed directly between the earth and the sun.

Because Mercury's apparent diameter was so small, the transit required a magnified view through a solar filter. To preserve eyesight, one could use only safe solar viewing techniques. The next transit of Mercury will be in May 2016.



- [Images from the 2006 Transit of Mercury at Mishawaka, Indian \(mercury-images.htm\)](#)
- [Images from the 2006 Transit of Mercury as seen worldwide](#)
- [2006 Transit of Mercury Details \(below\)](#)
- [Images from Previous Mercury Transits \(below\)](#)
- [18th, 19th, and 20th Century Items](#)
- [2006 Observing Opportunities \(mercury-view.htm\)](#)
- [Safe Solar Viewing Techniques \(safety.htm\)](#)
- [Transit Site Map \(sitemap.htm\)](#)

2006 Transit of Mercury Details





<http://sunearth.gsfc.nasa.gov/eclipse/OH/transit06.html>

Transit of Mercury details from Fred Espenak include a table giving the times of major events during the 2006 transit; a map showing the global visibility; and the Index to Local Circumstances, showing when the transit is seen from locations around the world. Excerpted diagrams, above, courtesy of Fred Espenak.



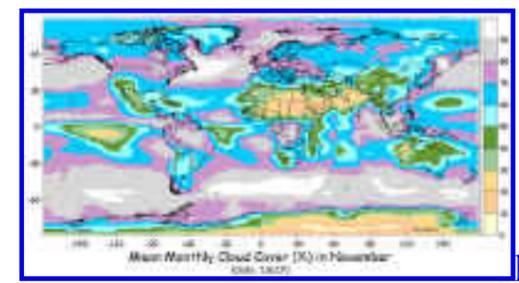
<http://nasadln.nmsu.edu/dln/content/catalog/details/?cid=546>

NASA coverage of the transit of Mercury featured a **live webcast**, a panel of scientists sharing their expertise, and lesson plans. Targets students and informal educators for grades 5-8; from the NASA Digital Learning Network.



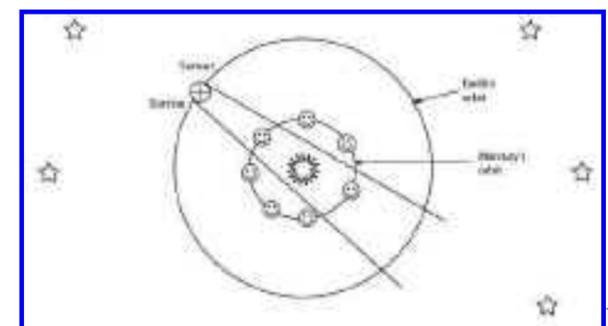
<http://sunearthday.nasa.gov/2007/events/mercurytransit.php>

NASA's Sun-Earth Day team offers links to NASA webcast, supporting materials, and a list of Local Happenings.



<http://home.hetnet.nl/~smvanroode/mercury.html>

Find out if you will be able to see Mercury during the November 8, 2006, transit. To compute your local circumstances, just enter your longitude and latitude and press the compute button. Site also suggests best viewing and weather prospects. From Steven van Roode.



<http://www.astrosociety.org/education/publications/tnl/69/mercury.html>

Universe in the Classroom issue includes background on the transit of Mercury; where the planet appears on the sun; what you can expect to see; unsolved mysteries about Mercury; the Messenger spacecraft en route to the planet (arriving in March 2011); an activity comparing Mercury's orbit to Earth's; an activity on why transits are so rare; and resources. Issue No. 69 - Fall 2006, by Suzanne Gurton, Education Manager of the Astronomical Society of the Pacific (ASP). Also available as a [pdf version](#).



<http://shadowandsubstance.com/>

Simulation of the transit of Mercury shows the planet crossing the sun in multiple U.S. time zones; by Larry Koehn. Note that sunspots will depend on the solar conditions of November 8, 2006.



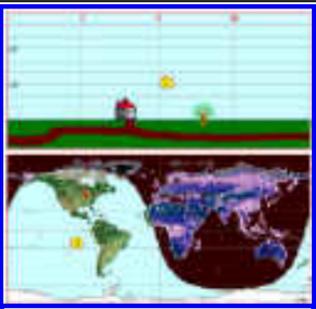
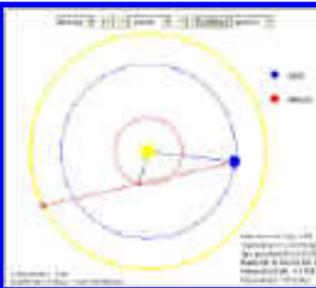
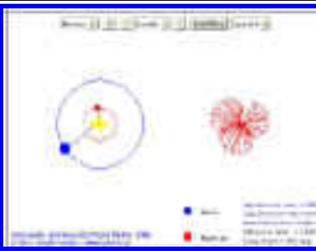
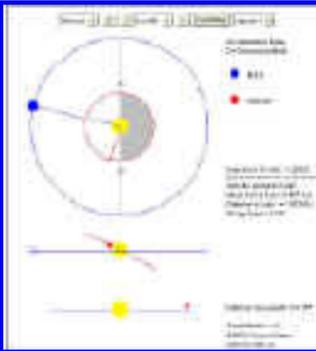


<http://www.exploratorium.edu/transit/>

The Exploratorium will provides a **live webcast** of the transit of Mercury from Kitt Peak. Additionally, animation shows Mercury passing between earth and sun during Mercury's orbits around the sun.

www.jgiesen.de/astro/AstroApplets/index.html

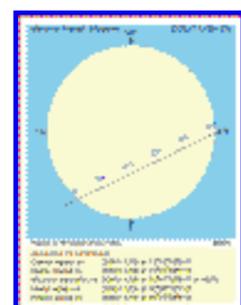
Set these applets in motion to witness the motion of the inner planets transiting the sun from a different perspective. Five controllable applets by Juergen Giesen allow you to highlight the motions of Mercury:

	<p>www.venus-transit.de/TransitObserver/index.html Transit Observer</p>
	<p>www.venus-transit.de/PlanetPhases/index.html Phases of Mercury</p>
	<p>www.venus-transit.de/PlanetMotion/index.html Planetary Motion of Mercury</p>
	<p>www.venus-transit.de/geocentric/index.html Geocentric Motion of Mercury</p>
	<p>www.venus-transit.de/TransitMotion/ Transit Motion</p>



http://science.nasa.gov/headlines/y2006/20oct_transitofmercury.htm

Play audio file or download the story of Mercury as an mp3 file.



http://www.nao.rl.ac.uk/nao/transit/M_2006/

HM Nautical Almanac Office lists geocentric circumstances.





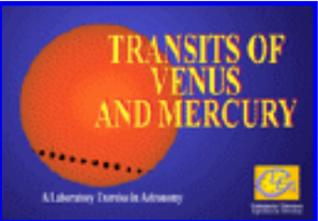
<http://aa.usno.navy.mil/data/docs/Mercury2006.pdf#search=%22transit%20mercury%202006%22>

US Naval Observatory file lists when transit can be seen from sites around the world. Includes ingress and egress times at both the interior and exterior contacts (that is, when the planet is just touching the edge of the sun).



<http://www.lpl.arizona.edu/~rhill/alpo/transitstuff/transit061109.html>

The Association of Lunar and Planetary Observers (ALPO) encourages observers to submit drawings, photographs or images to the ALPO Mercury/Venus Transit Section. Article by John Westall describes what one can expect to see and offers tips for recording the event.



<http://public.gettysburg.edu/~marschal/clea/Transitlab.html>

Contemporary Laboratory Experiences in Astronomy (Project CLEA) offers a free exercise to quantify the Astronomical Unit using telescopic images of the 2004 transit of Venus. "Software provided enables student to access the GONG images, display them as still images or animations, measure and record the positions of the silhouette of the planet, plot its track across the sun, and thus determine the apparent parallax of the planet and the length of the astronomical unit. A second set of images of the transit of Mercury, May 7, 2003, is also available."



http://www.meade4m.com/articles/archive/4M_Scott_1151393729.html

Article includes text of Edmond Halley's description of how transits can be used to measure the distance from the sun to the earth.



The September/October 2006 issue of *Mercury* magazine features "Mercury's Time to Shine" by Clifford Cunningham. The article illuminates the (sometimes false) claims and observations of mercury transits through the ages; Volume 35, Issue 5, pp.12-19.



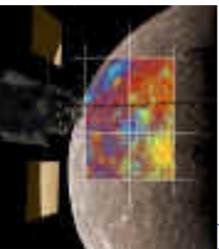
<http://www.spaceweather.com/>

Spaceweather tracks current conditions on the sun, including the evolving sunspots that may rival--if not exceed--the apparent size of Mercury.



<http://www.seds.org/nineplanets/nineplanets/mercury.html>

Background on Mercury and our scientific understanding of the planet, with emphasis on images returned from the Mariner 10 spacecraft.



<http://messenger.jhuapl.edu/>

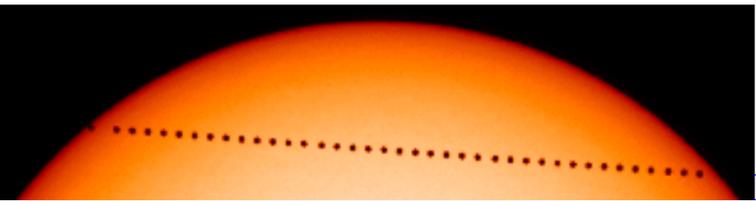
Messenger is a NASA Discovery mission to conduct the first orbital study of the innermost planet. The spacecraft will be inserted into orbit around Mercury in March 2011.

Previous Transits of Mercury



[mercury-marschall.jpg](#)

Transit of Mercury, 1914 November 7, photograph taken at Greenwich; image courtesy of Laurence Marschall.



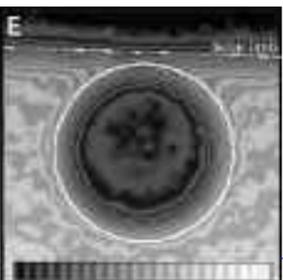
http://sohowww.nascom.nasa.gov/hotshots/2003_05_07/

SOHO spacecraft captures 2003 transit of Mercury.



http://sohowww.nascom.nasa.gov/hotshots/2003_05_07/latest_eit.mpg

Movie sequence of Mercury passing in front of sun, as seen by SOHO spacecraft through filters of four colors.



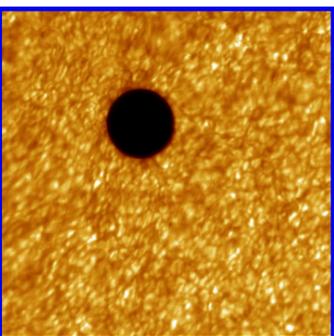
<http://www.williams.edu/astronomy/eclipse/transits/transitofmercury.htm>

Jay Pasachoff and Glenn Schneider explore the science of the inner planets during transits. For the 2006 Mercury transit, they will "attempt to measure the sodium component of Mercury's extremely tenuous 'atmosphere,' measure its height, and determine how it varies from Mercury's pole to its equator. They will additionally use the polarimetry capability of the instrument to try to detect the weak Mercurian magnetic field against that of the Sun." See [November 2006 press release](#) for event details, as they will be part of webcast from Hawaii.



<http://didaktik.physik.uni-essen.de/~backhaus/Venusproject/mercury2003.htm>

Project uses 2003 transit of Mercury observations to measure the distance to the sun.



<http://www.solarphysics.kva.se/Mercurytransit7May2003/>

The Royal Swedish Academy of Sciences offers mpg movie

(http://www.solarphysics.kva.se/Mercurytransit7May2003/movies/mercury_color.mpg) and separate jpeg images from the 2003 transit .





<http://www.abingdonastro.org.uk/mbobmerct1.htm>

Amateur observers photograph a previous transit of Mercury, which hints at the smallness of Mercury (or the enormousness of the sun).



7/05/2003 12:27

Mira Public Observatory at Grimsbergen, Belgium captures the last contact of the 2003 Transit of Mercury.



<http://apod.nasa.gov/apod/ap030527.html>

Astronomy Picture of the Day features image of Mercury transit with sunspots.



<http://antwrp.gsfc.nasa.gov/apod/ap030513.html>

Astronomy Picture of the Day features image of Mercury transit with sunspots, plages, and prominences.

http://www.ast.cam.ac.uk/~ipswich/Observations/Mercury_Transit_2003_05_07/Transit.htm

Views in 2003 from Ipswich, UK, which will not see the 2006 event.

18th, 19th, and 20th Century



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](#)

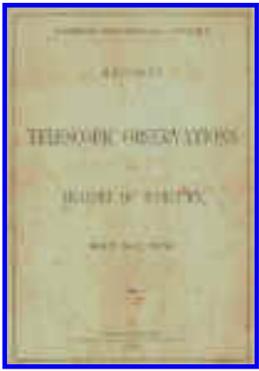
Doppelmayr illustrates the path of Mercury across the face of the sun for the November 6, 1720, transit of Mercury.



[Doppel1448.jpg](#)

Inset shows personified Mercury and Venus passing between the earth and the sun, depicting the

inset shows personified Mercury and Venus passing between the earth and the sun, depicting the circumstances that create a transit.



[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.



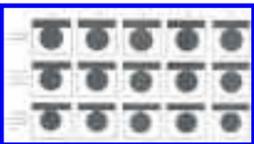
[mercury-1878fig2.jpg](#)

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.



[mercury-eckstein.htm](#)

Auction item: Eckstein painting of *Transit of Mercury, on the 7th of May 1799*.

John Ewing, "An Account of the Transit of Mercury over the Sun, on November 9th 1769.," *Transactions of the American Philosophical Society*, vol. 1 (1771).





[mercury-marschall.jpg](#)

Transit of Mercury, 1914 November 7, photograph taken at Greenwich; image courtesy of Laurence Marschall.

2006 Transit of Mercury Observing Opportunities

Note: Since the number of observing locations has grown, this information has been moved to its own, yet limited, "[View the Transit](#)" page. Because observing opportunities are rapidly growing as the 2006 transit of Mercury approaches, we encourage organizers to list their event at the NASA Sun-Earth "[Local Happenings](#)", below.



<http://sunearthday.nasa.gov/2007/events/mercurytransit.php>

NASA's Sun-Earth Day team offers links to live **webcast**, supporting materials, and a list of Local Happenings.



<http://www.exploratorium.edu/transit/>

The Exploratorium will provide a live **webcast** of the transit of Mercury from Kitt Peak. Additionally, animation shows Mercury passing between earth and sun during Mercury's orbits around the sun.



[_phm/mercury.htm](#)

The PHM Planetarium in Mishawaka, IN, had a special program on Tuesday, November 7, at 6:30 p.m. that conveyed the significance of the transit, what observers can expect to see, and insight into the planet closest to the sun. Solar-filtered telescopes were available for the public to view the transit of Mercury on November 8, 2006, from 1:00 to 5:00 p.m. Located at Bittersweet School just north of Penn High School, the planetarium also featured extensive [programs and observing opportunities](#) for the 2004 transit of Venus. **Images of the 2006 transit of Mercury are at [mercury-images.htm](#).**

Miscellaneous



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

Enter your photo or drawing of the transit of Mercury as seen through a Hydrogen-alpha telescope in this contest. Submissions due November 13, 2006.



www.nightwise.org

For all the wrong reasons, solar and lunar celestial phenomena are becoming more significant as observational events. Traditional dark sky viewing opportunities are being lost from poor and excessive outdoor lighting that is degrading our nighttime heritage. Once sky glow overwhelms the starry firmament, about all that's left will be eclipses and transits. [Nightwise](#) addresses lighting issues in the interest of

saving energy and money; improving motorist and pedestrian safety; benefiting animal habitats and human health; increasing security and the sense of well-being; and preserving the night sky.

www.transitofvenus.org

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