

Transit of Mercury Thursday 9 November 2006

The planet Mercury will appear to pass in front of the disc of the Sun on the morning of Thursday 9 November 2006. New Zealanders and Australians on the east coast of the continent will be able to see this rare event from 6:12 am until 11:10 am Eastern Summer Time. Those further west will be able to see the event from local sunrise. This will be the last transit of Mercury visible from Australia until 2032.

The entire transit is visible from the east coast of Australia, Tasmania, New Zealand, the Pacific Islands, Antarctica and the west coast of North America. Elsewhere only part of the transit is visible or, as in Africa and Europe, it is not visible at all.

What is a transit?

A transit occurs when a planet appears to move across the disc of the Sun. Only the two inner planets, Mercury and Venus, can take part in a transit. Transits of Venus are very rare as they occur in pairs, eight years apart, and then not for over a century. They are more famous than those of Mercury as scientists in the 18th and 19th century used them to establish the scale of the Solar System. They are of special interest to Australians since Lieutenant James Cook's voyage to Tahiti to observe the 1769 transit of Venus led to the European settlement of the continent.

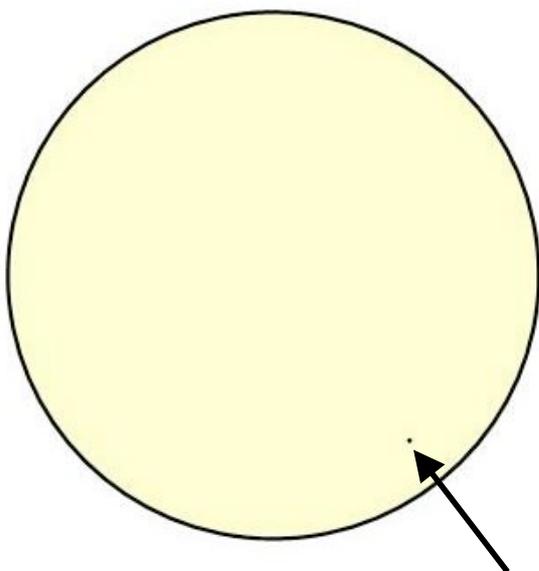


Figure 1 The tiny disk of Mercury crossing the Sun

Transits of Mercury

Transits of Mercury are more common than transits of Venus. On average Mercury passes in front of the Sun 13 times each century. It can do so either in May or November. The last transit of Mercury was on 7 May 2003 and there will not be another one visible from Australia until the afternoon of 13 November 2032.

History

The astronomer Johannes Kepler was the first person to predict a transit of Mercury. He thought that he had seen one in May 1607, but after calculating the position of the planet he realised that he had only seen a sunspot. By 1629 he had developed his theory of the planets sufficiently to predict a transit for 7 November 1631. Though Kepler died before the

event, on the appointed day the French astronomer Pierre Gassendi became the first person to knowingly watch a transit of Mercury.

Timings for the transit of Mercury on 9 November 2006

The table below gives the times of the transit for major cities in Australia and New Zealand. Observers elsewhere can estimate their own local time for the event from these.

First contact refers to the time Mercury first touches the edge of the Sun’s disc. Second contact, just a few minutes later, occurs when Mercury is fully on the disc. Third and fourth contacts are similar, but refer to the planet leaving the disc of the Sun. In places where the transit is already underway at sunrise, the sunrise time is listed.

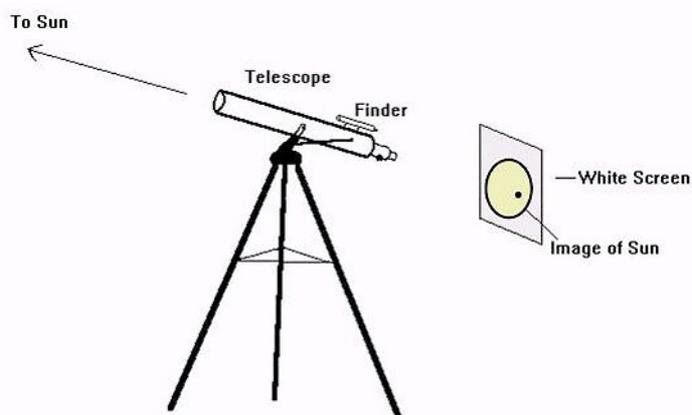
Place	Sunrise	First Contact	Second Contact	Third Contact	Fourth Contact
Adelaide	6:07 am			10:39 am	10:41 am
Auckland		8:12 am	8:14 am	1:08 pm	1:10 pm
Brisbane		5:12 am	5:14 am	10:08 am	10:10 am
Canberra		6:12 am	6:14 am	11:09 am	11:10 am
Darwin	4:42 am			9:39 am	9:41 am
Hobart		6:12 am	6:14 am	11:09 am	11:10 am
Melbourne		6:12 am	6:14 am	11:09 am	11:10 am
Perth	5:13 am			8:09 am	8:11 am
Sydney		6:12 am	6:14 am	11:08 am	11:10 am
Wellington		8:12 am	8:14 am	1:08 pm	1:10 am

All times in local time, including summer time where applicable

What will we see?

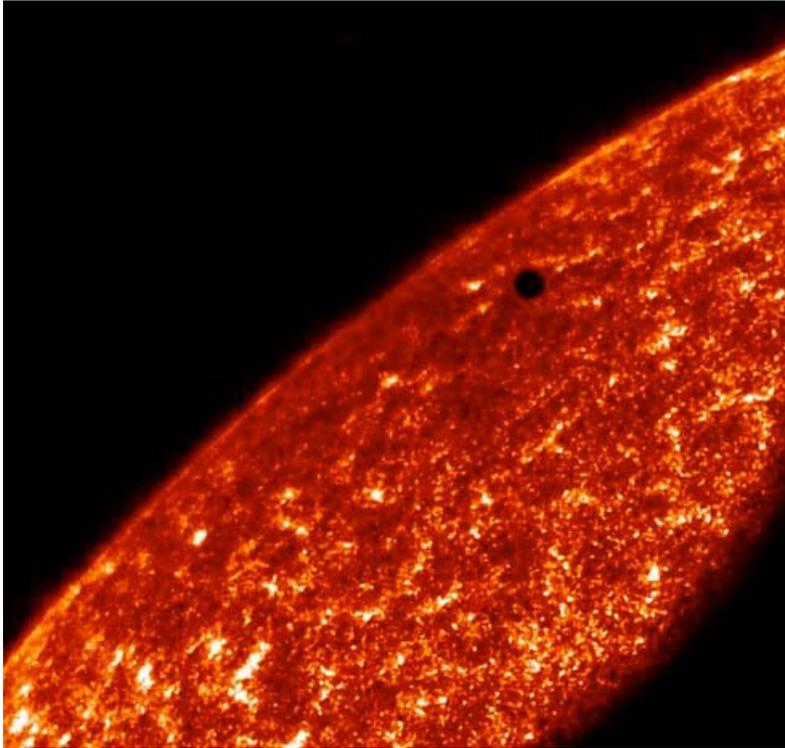
During the morning of **9 November**, as Mercury starts moving slowly across the Sun, it will appear in silhouette as a small black disc. The width of the disc will be 1/194th of that of the Sun.

NOTE that it is always dangerous to look at the Sun directly. The safest way to view this event is to project an image of the Sun through a telescope (as shown in Figure 2 at right).



How to use a telescope to project an image of the Sun. NEVER look through the telescope or its finder!

Figure 2



*Figure 3
Mercury crossing the Sun in 2003.
This image in ultraviolet light was taken by the Transition Region and Coronal Explorer (TRACE) spacecraft. Courtesy NASA*

Sydney Observatory will be open for safe public viewing – for more details see www.sydneyobservatory.com. Other observatories around the country are likely to hold observing sessions. Contact your local public observatory or planetarium for information.

This information was prepared for the ASA by Nick Lomb of Sydney Observatory (<http://www.sydneyobservatory.com.au>). This sheet may be freely copied for wide distribution provided the Australian Astronomy and ASA logos are retained.

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