

Rare appearance of Venus next week

Planet Will Be Seen As Black Dot Moving Across Sun From Sunrise To 10.30 AM

TIMES NEWS NETWORK

Pune: Enthusiasts must not miss Wednesday's Transit of Venus as the rare celestial event will not occur till December 11, 2117. That is 105 years away.

Venus, the second closest planet to the sun, will be directly between the sun and the earth and the transit will be visible in India from sunrise till 10.30 am. The planet will be seen as a black dot moving across the face of the sun.

"A transit is an astronomical event in which two astronomical bodies come in one straight line, like a total solar eclipse. In a solar eclipse, the apparent size of the moon is much larger than that of the sun. This causes the sun to be completely blocked by the moon. In case of a transit, the apparent size of the object coming between the observer and the object in the background is much smaller," Arvind Paranjpye, director of Nehru Planetarium in Mumbai, said.

Paranjpye added that when Venus comes between the sun and the earth, its apparent size, as seen from the earth, is about 30 times smaller than that of the sun.

"As a result, an observer on the earth sees the disk of Venus being projected on the disk of the sun. This is called the Transit of Venus," Paranjpye added.

The Transit of Venus comes in a pair, separated by eight years. "The last transit of Venus was seen on June



Venus (below) will come directly between the Sun and Earth

Next Transits

- ▶ December 11, 2117
- ▶ December 8, 2125
- ▶ June 11, 2247
- ▶ June 9, 2255

8, 2004. The pair repeats at intervals of 105.5 years and 121.5 years. The next pair of transits will take place after 105

VIEWING WITH CARE

Don't

- ▶ Do not look at the sun with naked eyes
- ▶ Never use sun goggles to look at the sun directly
- ▶ It is not safe to look at the sun's reflection in the water.
- ▶ Never use any optical instrument, such as binoculars or telescopes to look at the sun.
- ▶ Use of lamp blackened glass to look at the sun is highly dangerous; as such glass may allow unwanted rays to pass through it.
- ▶ Do not use photographic materials

Do

- ▶ Use proper certified solar viewer to look at the sun
- ▶ Use brand new, No. 16 welder's glass
- ▶ Use pinhole technique to see the image of the sun.
- ▶ Use a very small mirror (not more than 1 cm x 1 cm) to reflect the sun at a distant wall
- ▶ Witness the event by joining various web casts

years, on December 11, 2117 and December 8, 2125. The last pair appeared 121 years ago on December 9, 1874 and

December 6, 1882," added Paranjpye.

Dibrugarh in Assam, where the sun will rise at 4.15 am, will be the first Indian city to witness the transit. Nehru Planetarium will webcast the event live.

City-based National Centre for Radio Astrophysics (NCRA, Pune) will publish a graphic comic about the history and the science associated with the Transit of Venus.

The story behind this event has been illustrated by Reshma Barve. This work has been translated into more than 10 Indian and foreign languages including Marathi, Hindi, Tamil, Gujarati, Bengali, Kannada, Telugu, French, Spanish, and Italian, among others.

The PDF files of these comics have also been made, while a few English and Marathi copies have been printed for distribution among schools.

Since the early 1600s, astronomers knew the distances between various planets and the sun only in terms of the Earth-Sun distance. The most accurate method available to determine the value of the Earth-Sun distance in km was by accurately timing the moment Venus entered or left the disk of the Sun. Astronomers from many countries tried to do so in 1761, 1769, 1874 and 1882 with great difficulty.

This comic describes the story through cartoons, and leads up to the 2012 event. It explains the current motivation for observing this event and ends with a number of ways for us to safely observe the transit.