

VENUS Transit 2004

<http://sunearth.gsfc.nasa.gov/sunearthday>

NASA Space Science Education Forums

Sun-Earth Connection
<http://sunearth.gsfc.nasa.gov/>

Origins
<http://origins.stsci.edu/>

Solar System Exploration
<http://sseforum.jpl.nasa.gov/>

Structure and Evolution of the Universe
<http://cfa-www.harvard.edu/seuforum/>

Sun-Earth Day March 19
Transit of Venus June 8

On June 8th, 2004 a celestial event of historical scientific importance will occur when the silhouette of the planet Venus once again crosses the face of the Sun as seen from the Earth. This event or transit of Venus last occurred in 1882, so no one alive today has ever witnessed the transit of Venus. Through parallax measurements, it allowed astronomers to define, for the first time, a fairly accurate number for the astronomical unit (the distance from Earth to the Sun) and therefore, the distance to all the other known planets. Additionally, the transit produced estimates of longitude location on the earth and provided the first evidence for an atmosphere around Venus.

During the previous 1882 transit, expeditions were launched to all parts of the world to retrieve accurate parallax measurements. During the 2004 transit, professional and amateur astronomers all over the world will be waiting with sophisticated ground based telescopes, as well as spacecraft that will view the transit in a myriad of frequencies.

Sun-Earth Day 2004 has selected the transit of Venus as this year's theme. Opportunities are available to prepare for the viewing of the event. The website <http://sunearth.gsfc.nasa.gov/sunearthday> has been developed to provide the necessary resources and opportunities for participation in our fourth Sun-Earth Day. This year's program will continue to offer new and exciting space science content that will cross all of space sciences, offering activities and resources for every classroom and museums event. The goal is to involve as much of the student population and the public in this event as possible and to help them understand the immense importance and excitement surrounding this and previous transits. John Philip Sousa's *Transit of Venus March* written in 1883 will also be re-performed for the first time in 120 years. Through engaging activities focused on US and world history, music, technology, math, and astronomy, classrooms and museums can create their own event or participate in one of the opportunities we make available. Comparisons of Venus with Earth and Mars,

calculations of the distances to nearby stars, and the use of transits to identify extra-solar planets will all add to the excitement of this cosmic occurrence.

To prepare you for this historic event, be sure to visit the new **Sun-Earth Day** website to register for your free educational packet.

<http://sunearth.gsfc.nasa.gov/sunearthday>

On-Line Programs for participation:

- A web cast on March 19th for Sun-Earth Day, to prepare students, parents and museums for safe viewing of the transit of Venus
- A real-time web cast on June 8th of the entire Transit starting at 1 AM (EDT) Tuesday and ending 7:30 AM (EDT)
- Online archives of Transit images taken by amateur and professional telescopes from across the globe
- Library of Congress and other historical documents from past transits
- Classroom math, geometry, reading and science activities to study the Transit and the scale of the solar system and universe based on the real-time data
- 'Ask the Scientist' chat rooms and email opportunities
- Solar Week, for students to learn about careers in space science
- NASA Connect tells about the transits and scaling the solar system
- Venus the Twin Planet
- The Solar-Planetary Connection
- Student Parallax Observations
- Educational Activities
- Data Archive
- Setting the Scale of the Solar System
- Research on planets and other stars
- Student Observation Network- sunspotters view the transit
- John Philip Sousa's *Transit of Venus March* first re-performance

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