

Astronomer urges researchers everywhere to study Venus transit

May 17 2012, by Bob Yirka



The 2004 transit of Venus. Photo taken by Jan Herold.

(Phys.org) -- Jay Pasachoff, Director of Hopkins Observatory, Chair of the Astronomy Department at Williams College and Field Memorial Professor of Astronomy, has written a commentary piece published in the journal *Nature*, urging stargazers everywhere to take advantage of the unique opportunity to study the Venus transit, which will occur June 5-6. It will be, he reminds readers, a once in a lifetime opportunity.

Because of their orbits, <u>Venus</u> only rarely crosses the <u>sun</u> from an Earthly perspective. It does so in a predictable pattern though which



repeats every 243 years. Each time the transits come in pairs however, separated by eight years with gaps of 121.5 years and 105.5 years. The last event was 1874-1882, while this one is 2004 and 2012, i.e. this year. The Venus transit occurs when Venus comes between the Earth and the sun, and is actually the same thing as a lunar eclipse, the only differences being the relative sizes of the objects and their distances from the Earth and sun.

Pasachoff writes that researchers from all over the world should take advantage of the opportunity to study an event that will not occur again in our lifetime, suggesting it's a moral obligation astrophysicists and astronomers should take seriously. One of the major benefits of studying the transit, he suggests is the opportunity to compare measurements based on one kind of event with those of another to help with calibrating both instruments and mathematical modeling. Doing so, he adds, could help researchers in the future better identify exoplanets, which of course, could lead to the discovery of life existing in places besides our home planet. One example would be carefully measuring Venus's diameter as it crosses the sun and then comparing that with measurements taken using other methods.

Making matters even more urgent is the fact that during this transit, our sun will be displaying sun spots, which Pasachoff says, allows for comparing changing light patterns of suspected exoplanets with those that occur much closer to home. One way scientists are able to identify an exoplanet is by measuring the dimming of a star as a planet passes between it and us, though sometimes other events can cause dimming as well. One of those is thought to be star flares, (akin to solar flares). By measuring the differences in amounts of light that reaches us during the Venus transit and then comparing that with the amount that reached us during the 2004 transit, which occurred during a time with no sunspots, researchers can more accurately predict whether star dimming is the result of distant transits or flaring.



Pasachoff adds that regardless of area of interest, the more people studying the transit the better, in as many ways as possible, even if there doesn't seem to be any immediate payoff. Information gathered during the <u>transit</u>, he points out, could very well reveal pertinent information later on.

More information: Transit of Venus: Last chance to see, *Nature* 485, 303–304 (17 May 2012) doi:10.1038/485303a

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