

1AU Determination by the Parallax Measurement of Mercury Transit and Venus Transit between the Earth and the Satellites

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The measurement of 1 Astronomical Unit(AU)is very important because of the first step of distance ladder. On June 8, 2004, the transit of Venus was observed in Japan after an interval of 130 years. This is the first Venus transit after the space age. We show the new idea to determine the 1AU using the parallax measurement of Venus transit by the satellites. The first is using the images took by SOHO (Solar & Heliospheric Observatory), which is 1.5 million kilometers sunward of the Earth in a halo orbit around the L1 Lagrangian point. The baseline between the Earth and SOHO is more than 90 earth radiuses at Mercury transient in 2003, so we can easily measure the parallax of sun. The second is the images took by TRACE(Transition Region and Coronal Explorer) that is the polar satellite. Due to polar orbital motion of satellite, about 90 min modulation of position of Venus transient was observed. From the magnitude of such modulation, we can derive the sun parallax.