

Abstract Submitted
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A measurement of Vertical Aerosol Optical Depth at the Telescope Array experiment JIHEE KIM, Department of Physics and Astronomy, University of Utah, TELESCOPE ARRAY COLLABORATION — We will present a technique for measuring the Vertical Aerosol Optical Depth (VAOD), a critical parameter for correcting atmospheric attenuation. This technique uses a vertical laser beam fired from the Central Laser Facility, located equidistance from the Telescope Array fluorescence telescope stations. Using laser beam events seen by the stations, we analyze the amount of light lost from aerosols hourly each night. From those measurements, we estimate the nightly VAOD. We find that the event-by-event uncertainty in the VAOD is ± 0.007 , which is $\pm 3\%$ in energy at distance 21 km. Furthermore, by looking at the same laser events seen by different stations, we can measure the $\langle \text{VAOD} \rangle$ to ± 0.003 , which is $\pm 1.5\%$ in energy at distance 21 km.

Jihee Kim
Department of Physics and Astronomy, University of Utah

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