

Abstract Submitted
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Estimating Ultraviolet Solar Irradiance from Total Solar Irradiance: A Nine City Comparison EUGENE CLARK, Trinity University — This paper presents new empirical equations that estimate hourly solar ultraviolet irradiance from the measured total solar irradiance and the solar zenith angle. These equations are based on data taken in 4 US cities (San Antonio, TX, Atlanta, GA, Albany, NY and Fairbanks, AK). Data taken in all 4 of these US cities utilized Eppley model PSP and TUVB radiometers. The response of the TUVB is dominated by UVA, but also includes some of the UVB region of the spectrum. The empirical equations based on the US data are compared with previously published equations based on data measured in 4 cities in Spain and one city in northern China. In all nine cities, the UV fraction of the total solar irradiance increases from about 4% under cloud free conditions to about 8% under heavily overcast conditions.

Eugene Clark
Trinity University

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