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Study of Photolysis Rate Coefficients to Improve Air Quality Models SUHAIL MAHMUD, PEMA WANGCHUK, Computational Science Dept,University of Texas at El Paso, ROSA FITZGERALD, Physics department,University of Texas at El Paso, WILLIAM STOCKWELL, Howard University, PHYSICS DEPT, UNIVERSITY OF TEXAS AT EL PASO COLLABORATION, PHYSICS AND METEOROLOGY DEPARTMENT,JACKSON STATE UNIVERSITY COLLABORATION, CHEMISTRY DEPT,HOWARD UNIVERSITY COLLABORATION — The main objective of this work is to measure hemi-spherically integrated spectrally resolved solar photon flux between the wavelengths of 300 and 700 nm (actinic flux), and use the measured actinic flux to improve air quality simulations. Photolysis is the main driver of ozone production and this factor defines the significance of this research work. The actinic flux has been measured during the summer of 2015 in the El Paso-Juarez Airshed, at the UTEP location to calculate photolysis rate coefficients for nitrogen dioxide (NO2), ozone (O3) and formaldehyde (HCHO). The improved photolysis rate coefficients have been integrated into a photochemical airquality model (CAMx), and simulations for a selected modeling summer 2015 ozone episode have been performed in the El Paso-Juarez Airshed in an attempt to improve on air quality forecasting. We present inter-comparison results of the ozone concentrations using the standard photolysis rate coefficients and the modified photolysis rate coefficients. Although this novel methodology is applied in the El Paso-Juarez Airshed, it can be used in any US region.

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