WATER VAPOR CONTINUUM ABSORPTION OF VIOLET LIGHT

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During cavity ring-down spectroscopy measurements of ambient NO2 measurements at 405 nm, interference was noted from water vapor in a continuous broad absorption feature with a quadratic dependence on water monomer concentration. Using the most recent calculations for the water dimer equilibrium constant, we have obtained the possible water dimer absorption cross-section from 396 to 410 nm, and found it to be remarkably high. A vandt Hoff plot shows thermodynamics consistent with water dimer theoretical calculations. This absorption might explain some of the anomalous absorption found near clouds and affect the calculations of radiative forcing used to model global climate change.