

Atmosphere-biosphere interactions during SOAS through multiphase chemistry

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Photochemical model simulations suggest the potential for water soluble organic gases to partition to particle phase liquid water (H_2O_{ptcl}) where they can form secondary organic aerosol (SOA) is high during the summer in the humid Southeast U.S. Measurements during the Southern Oxidant and Aerosol Study (SOAS) from June 1 – July 15, 2013 confirm that liquid water is a substantial component of daytime aerosol mass in Alabama. Diurnal changes in particle hygroscopicity substantially influence H_2O_{ptcl} . During SOAS we observe that more than 90% of the organic aerosol mass is water-soluble and that surrogates for biogenic SOA correlate with H_2O_{ptcl} .