263c Are Organic Surfactants Ubiquitous?

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Quantifying the effect of water soluble organic compounds (WSOC) on cloud droplet activation constitutes a major source of uncertainty in aerosol-cloud climate interaction studies. This study focuses on characterizing the WSOC found in a diverse set of aerosol samples that will be generated and also obtained from field experiments (formulated organic/inorganic fractions, rural biomass burning, urban Atlanta aerosol, and secondary organic aerosol samples obtained from the California Institute of Technology SOA chamber). We focus on properties most relevant for cloud droplet activation, which are surface tension depression, droplet growth kinetics and soluble mass. Surfactant properties are characterized by surface tension measurements with a KSV inc, pendant drop method tensiometer. Water soluble mass is characterized by a functional group analysis, by separation of the samples into hydrophilic, hydrophobic, and deionized components. Finally, the droplet growth kinetics and aggregate activation properties of all the samples are measured using a Droplet Measurement Technologies CCN counter.