



Single particle insight into heterogeneous chemistry and sources of tropospheric aerosols

K. Prather, S. Guazzotti, J. Holecek, X. Qin, L. Shields, M. Spencer, R. Sullivan, S. Toner

University of California, San Diego, USA (kprather@ucsd.edu)

The impacts of aerosols on health and climate are rapidly rising to the top of our list of global environmental concerns. In order to make progress in understanding how aerosols play a role in these areas we must address two key questions: what are the major sources of particles and what are the major heterogeneous reactions occurring in the atmosphere? Measuring single particle mixing state is one key way to probe these questions. This presentation will focus on how real time single particle mass spectrometry can be used to offer additional insight into these questions. Details will be provided on the spatial and temporal variability of tropospheric aerosols measured in studies performed in a number of different locations including the United States, India, and Asia. A discussion will be presented on the size-resolved source contributions of aerosols to the atmosphere and how different particle compositions can be correlated with simultaneous optical measurements.