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FINE PARTICLE FORMATION AND PROCESSING IN A SIERRA NEVADA FOREST. Melissa M. Lunden*, Douglas R. Black and Nancy J. Brown, Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory, One Cyclotron Road MS 29C, Berkeley, CA 94720; Anita Lee, Gunnar W. Schade and Allen H. Goldstein, Division of Ecosystem Sciences, Department of Environmental Science, Policy, and Management, University of California, Berkeley, CA 94720.

Forested ecosystems emit significant amounts of volatile organic compounds (VOCs), which impact atmospheric photochemistry through ozone and aerosol production. To study biosphere-atmosphere exchange of ozone and VOCs and their effects on aerosol formation and processing, we have conducted a study at the Blodgett Forest Research Station in the Sierra Nevada Mountains of California. The research site includes automated instrumentation for the in-situ measurement of concentration and biosphere-atmosphere flux of VOCs, ozone, aerosol integrated and size resolved instrumentation, and meteorological variables. Preliminary results have shown that particle concentrations are correlated with both biogenic (alpha-pinene and isoprene) and anthropogenic (toluene) VOC concentrations. In addition, the formation of small, nuclei model particles (<20nm) has been observed just after noon on many days. This presentation will focus on recent results from the Blodgett site focusing on the diurnal aerosol patterns at the site, the relative importance of anthropogenic and biogenic sources on aerosol concentrations, and correlations between VOC measurements, meteorology, and particle formation events. Experimental yield data will be used with measured fine mode aerosol data to investigate whether oxidation of various organic precursors can account for aerosol growth.