



Aerosols Properties in Aged-Smoke layers from Asia during ARCTAS

Glenn Shaw (1), Javier Fochesatto (1), Catherine Cahill (1), Donal Harrigan (2), and Henry Fuelberg (2)

(1) University of Alaska Fairbanks, Geophysical Institute, Atmospheric Sciences, Fairbanks, United States
(foch@gi.alaska.edu, 1-907-474-7290), (2) Department of Meteorology, Florida State University, Florida, USA

Continuous, high-latitude aerosol measurements were collected between March and June, 2008, during the ARCTAS field experiment, at the Poker Flat Research Range, northeast of Fairbanks, Alaska. In this analysis, we combine the aerosol optical properties measured by a nephelometer, the microphysical properties of aerosols measured by a scanning mobility particle sizer and an optical particle counter, and the chemical composition of size-fractionated aerosols collected by a 3-stage DRUM aerosol impactor and analyzed by synchrotron x-ray fluorescence to cluster the optical and microphysical properties of sub- and super-micron aerosols in terms of the multicomponent aerosol chemical composition. The set of aerosol microphysical measurements clearly demonstrate the temporal variation in the long range transport of aerosols from different sources in Eurasia (i.e., Arctic Haze, Siberian wildfire smoke and Asian dust) to the sampling site. We will discuss the chemical signatures and the optical and microphysical properties of the springtime Arctic air mass aerosols in relation to their sources of origin.