Hundreds of wildfires in Northern California were sparked by lightning during the summer of 2008, resulting in downwind smoke for much of June and July associated with the flaming and smoldering stages of the fires. These fires are consistent with a growing trend towards increasing biomass burning worldwide. Climate impacts from the smoke depend critically on the smoke amount and aerosol optical properties. We report comparison of aerosol optics measurements in Reno Nevada made during the very smoky summer month of July with the relatively clean, average month of August. Photoacoustic instruments equipped with integrating nephelometers were used to measure aerosol light scattering and absorption at wavelengths of 355 nm, 405 nm, 532 nm, 870 nm, and 1047 nm. Total aerosol optical depth was measured with a sun photometer operating at 430nm, 470nm, 530nm, 660nm, 870nm and 950nm. A spectrometer based sun photometer with an operating range from 390nm to 880 nm was also used for a few days as well. These measurements document the intensity of the smoke optical impacts downwind. They are processed further to reveal a strong variation of the aerosol light absorption on wavelength, indicating the presence of light absorbing organic material and perhaps wavelength dependent absorption caused by black carbon particles coated with organic and inorganic particulate matter. On the day with most smoke in Reno (July 10, 2008) Angstrom coefficients for absorption as
high as 3.6 were found for wavelengths of 405 nm and 870 nm, with the corresponding single scattering albedo near 0.92 at 405 nm. Aerosol optical depths of 3.5 were found for 430 nm on July 10th from the sun photometer measurements. A roughly fourfold increase in aerosol optical quantities was observed between the months of July and August 2008, attesting to the large average effects of biomass aerosols from the California wildfires.