Multi-year Measurements of Aerosols at Storm Peak Laboratory, a Colorado Mountain Top Site

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Visible Multifilter Rotating Shadowband Radiometer (MFRSR) data were collected at Storm Peak Laboratory (SPL), a mountain top facility in northwest Colorado, from 1999-2011 and in 2013. From 2011-2014, *in situ* measurements of aerosol optical properties were also obtained. Using these datasets together, the seasonal impact of dust and biomass burning is considered for remote locations in the western United States. Analysis indicates that the median contributions to spring and summer aerosol optical depth (AOD) from dust and biomass-burning aerosols across the dataset are comparable. The mean AOD is slightly greater in the summer, with significantly more frequent and short duration high AOD measurements due to biomass-burning episodes, than in the spring. The contribution of Asian dust to the spring aerosol population in the remote Rocky Mountains and the question of persistent Asian dust transport are addressed.

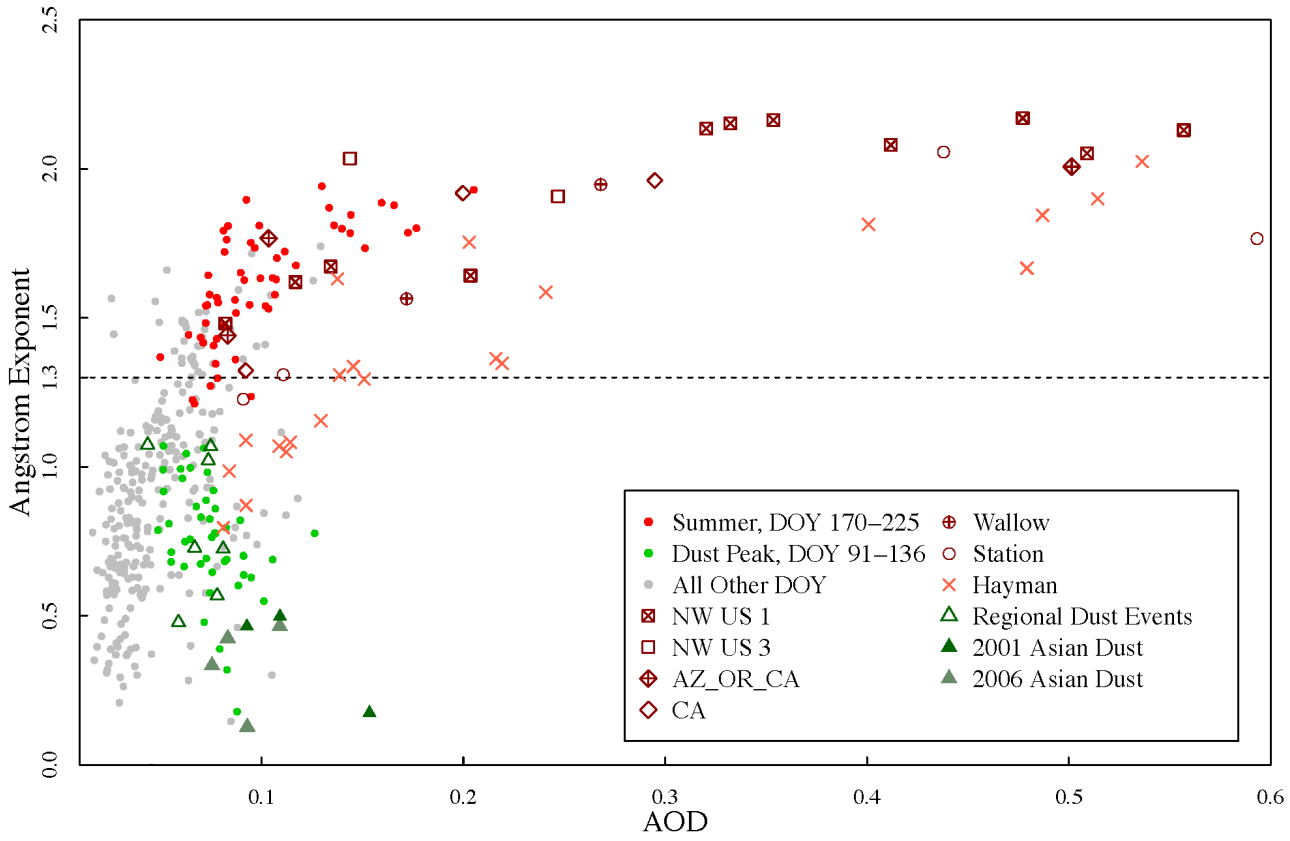

Figure 1. AOD vs Ångström measurements. The dots represent daily-averaged measurements for the entire 1999-2011 and 2013 period of observation. The red dots indicate all measurements made from DOY 170-225 during peak summer season. The green dots indicate all measurements made during DOY 91-136, spring dust peak. The gray dots indicate all measurements that were not made during these spring and summer periods. Events are shown with larger symbols; dust events are dark green and fire events are maroon.