A Comparison of Inlet Setups at Storm Peak Laboratory

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For many years, the NOAA ESRL/GMD has helped to operate and maintain numerous field sites for measuring and collecting data on ambient aerosol conditions, often in collaboration with other research institutions. One of these field sites, Storm Peak Laboratory in Steamboat Springs, operated by the Desert Research Institute, has been a key mountain site measuring aerosol optical properties continuously since 2011. During this time, a couple of inlet configurations have been used to collect aerosol data, using a variety of instrumentation. The first inlet was installed in 2001 (to present), and the second inlet was installed in 2012. In order to make sure that these instruments are performing correctly while on these different inlet setups, this study makes comparisons of these various arrangements. The first configuration occurred while two instrument racks were connected to the same inlet (different ports, displaced horizontally), while the second occurred while the two instrument racks were on separate inlet systems. Ideally, across both arrangements, the instruments should agree very well, but this is not the case for every scenario. In this study we present hypotheses as to why discrepancies exist between the two inlet setups (specifically size cuts), and why not all hypotheses presented can be rejected.

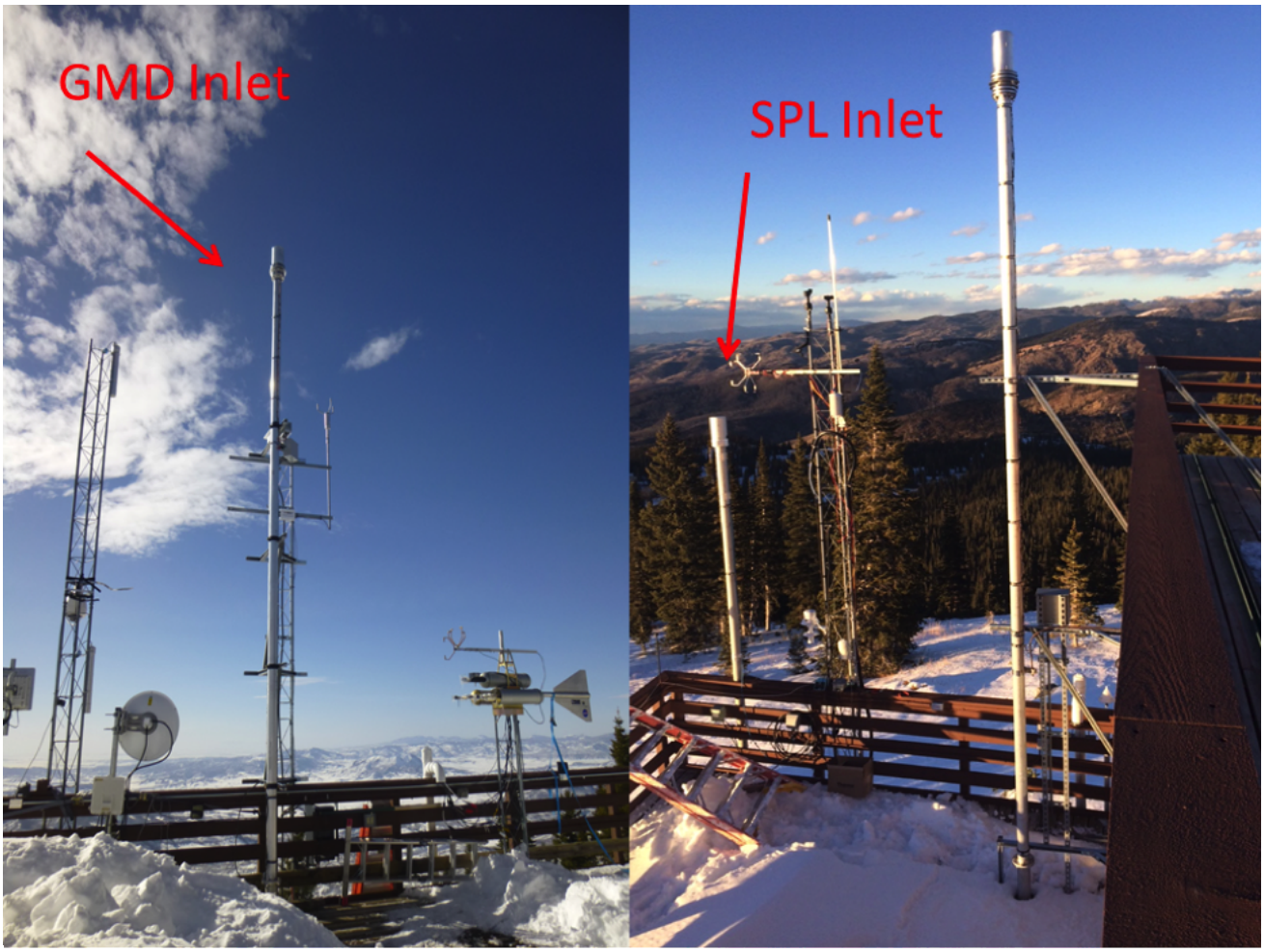

Figure 1. Photographs of both inlets at Storm Peak compared in this study.