**Wasatch Front Ammonia and Chloride Observations (WaFACOs): Preliminary Results**

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The 2017 Utah Winter Fine Particulate Study (UWFPS) and other studies have resulted in greatly increasing the understanding of the formation and behavior of the PM2.5 concentrations in the airsheds of northern Utah. However, like many research projects, uncertainty about some issues still remain and, further, the research opened up other questions. In particular are the distributions, likely sources, and particulate contributions of ambient ammonia and chlorine. The UWFPS suggested that at times the Salt Lake airshed may be both ammonia-rich and ammonia-depleted at different periods throughout an inversion episode. Furthermore, the above studies have suggested that current ammonia emissions inventories developed by the Utah Division of Air Quality do not adequately replicate the abundance or distribution of local ambient ammonia. Similarly, it has been speculated that atmospheric chlorine can contribute to active photochemistry and PM2.5 mass at certain locations throughout the Wasatch Front airshed, but its distribution and potential implications are also poorly understood.

Using a 40-site network of passive, real-time, and filter-based samplers investigators from USU, U of U, BYU, and UDAQ are characterizing the ambient concentrations of ammonia (NH3), hydrochloric acid (HCl), and particulate chemical composition during a winter season and a summer season. Passive NH3 and HCl samplers are to be located at each of the 40 sites while a real-time Picarro G2103 NH3, CO2, and H2O will be rotated through specific target locations, and at 10 of the network sites filter-based MiniVol PM2.5 samplers will also be collocated for assessment of mass and ionic content. All mass and ionic contributions will be quantified at USU’s Utah Water Research Laboratory. Further, at three of the MiniVol sites, additional MiniVols will be added for more detailed chemical speciation (carbon and elemental content). These additional analyses will be contracted via commercial laboratories.

The field studies began on January 19, 2019, with four, individual week long study periods, and the first winter season sampling period is planned to be completed by February 16th. This winter period, so far, has been characterized by a mixture of moderate inversions and dynamic storms. The summer study is tentatively planned for July 2019. As of this writing, the laboratory analyses are commencing and will be the focus of the requested Science for Solutions presentation.