# Air Quality: Science for Solutions Abstract Submission

## Sources of Formaldehyde in Bountiful, Utah

Abstract:

The U.S Environmental Protection Agency's National Air Toxics Trends Stations Network has been measuring the concentration of hazardous air pollutants (HAPs) including formaldehyde (HCHO) since 2003. Bountiful, Utah (USA) has served as one of the urban monitoring sites since the network was established. Starting in 2013, the mean concentration of HCHO measured in Bountiful, Utah exceeded the non-cancer risk threshold and the 1 in 1 million cancer risk threshold. In addition, the measured concentrations were more than double those found at surrounding locations in Utah. A Positive Matrix Factorization (PMF) analysis using PMF-EPA v5 was done using historical data (2004-2017) to better understand the sources of formaldehyde in the region. The historical data set included samples that were collected every sixth day on a 24-hour basis. Beginning in February 2019 an eight-week air sampling campaign was initiated to measure formaldehyde on a two-hour averaged basis. In addition, the measurements of $O_3$, NO, $NO_2$, benzene, toluene, ethylbenzene, and xylenes (BTEX) were also collected. Corresponding backtrajectory wind calculations for selected time periods were calculated to aid in the understanding of the effects of BTEX emission sources and formaldehyde formation. The results indicate that the principal formaldehyde sources are associated with biomass burning and the conversion of biogenic emissions into HCHO. Backtrajectory wind analysis of low ($\leq$ 3 ppbv) and high (23.8 – 32.5 ppbv) HCHO cases show a clear dominance of high HCHO originating in trajectories that come from the southwest and pass over the area of the oil refineries and industrial sources in the north Salt Lake City area.