

Saturation Air Toxics Monitoring in Davis County, Utah.

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A study conducted by the Utah Division of Air Quality (UDAQ) and the University of Utah, where 24-hr time-integrated air samples were collected every third day at three different sites during 2015, showed high levels of formaldehyde and dichloromethane at Bountiful Viewmont (BV) site. Levels of formaldehyde peaked during winter and measured concentrations during this period as well as previous years were overall associated with a high cancer risk, exceeding the one-in-a-million cancer risk threshold for formaldehyde. Similarly, high levels of dichloromethane, often exceeding its cancer risk screening value, were also recorded. However, while this study helped identify high-concentration air toxics in Bountiful, it lacked information on their sources and spatial variation. Sample collection was limited to a single sampling location. Given the significant health risk from formaldehyde and dichloromethane, UDAQ, in collaboration with the University of Utah, conducted a saturation monitoring study to help identify sources of these air pollutants and characterize their spatial distribution.

To characterize the spatial distribution and sources of formaldehyde and dichloromethane in Davis County, Volatile Organic Compounds (VOCs) and carbonyls samples were collected at 34 sampling sites for 6 weeks (01/16/2017-02/25/2017) during winter and 7 weeks (06/05/2017-07/17/2017) during summer. To account for the effect of meteorology on levels of the air toxics, daytime and overnight samples were also collected at select sites. Results indicated that formaldehyde is derived from a mix of sources, including solvent usage, industrial emissions and secondary carbonyl production. Dichloromethane, on the other hand, is emitted from an intermittent source. Findings from this study will ultimately help implement emission control regulations for better protection of human health.