

Winter Air Quality Study, February-March 2011, Boulder Atmospheric Observatory
Summary of Points from 21 February 2012 Presentation to the Erie Board of Trustees

Please note that analysis of the data from this study is in progress. When a peer-reviewed paper is published, we will make it available to the public.

- The Boulder Atmospheric Observatory (BAO) tower provides a convenient site for making measurements of air quality. Although the tower is located near Erie, Colorado, measurements of elevated pollutant levels at the BAO do not imply that those levels are confined to the area or that the pollutants come from sources only in the immediate area. Tower data typically provide information representative of the broader Front Range region.
- The Chemical Sciences Division of NOAA's Earth System Research Laboratory measured several volatile organic compounds (VOCs) during the study at the BAO. Among the compounds measured were ethane, propane, and butane, commonly referred to as "light alkanes."
- We compared the values we measured at the BAO to measurements we have made in other areas, such as Pasadena, California. Average amounts of several light alkanes were higher at the BAO. For example, propane was about 10 times higher at the BAO, on average, than values obtained in Pasadena in May to June 2010.
- The amounts of light alkanes at the BAO were highly variable over the period of time of the measurements (over a factor of 100 from highs to lows). In Pasadena, the amounts were much less variable. For simplicity, we compare averages of the measurements.
- The propane and other light alkanes measured at the BAO were likely not coming from an urban source. We determined this by comparing the amounts of the light alkanes with the amounts of other VOCs, such as acetylene, that are known to come from urban sources.

Background/other relevant information

- Atmospheric VOCs (of which light alkanes are a subset) have many sources, including oil and gas activities, urban sources such as transportation and industry, and agriculture.
- VOCs are precursors for the formation of other air pollutants such as ozone (<http://www.epa.gov/glo/>)
- Some VOCs have known health risks. NOAA's Earth System Research Laboratory does not have health risk expertise. Health information is available through other agencies, such as the Environmental Protection Agency (<http://www.epa.gov>).
- Other measurements of VOCs in the Colorado Front Range region are published in a recent study by Pétron et al. (Journal of Geophysical Research, February 2012), summarized here: <http://researchmatters.noaa.gov/news/Pages/COoilgas.aspx>