

Interactive comment on “Impacts of the Denver Cyclone on Regional Air Quality and Aerosol Formation in the Colorado Front Range during FRAPPÉ 2014” by K. T. Vu et al.

Anonymous Referee #2

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The authors have used part of the measurements during the FRAPPÉ study to evaluate the impacts of the Denver Cyclone on the local air quality based on meteorological variables, gaseous and aerosol measurements, some modeling, and comparison of results. This paper is well-written and outlines the details of the data analysis clearly to present the conclusion that the Denver Cyclone does indeed affect regional air pollution levels, especially in the Denver metro area. The data and analysis presented in this paper will be useful for future papers based on data collected during FRAPPÉ and other studies in this region.

Overall, the paper is good. I have some suggestions, outlined below, that make it more concise.

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1. The abstract can be shortened without compromising the intended message. For example, the sentence “Average nitrate mass . . . , respectively.” can be excluded from the abstract. Also, the way the abstract is written is just informative of the main text but not of the conclusion or the importance of the paper. After deleting some of the unnecessary information, it would be nice to add a sentence that addresses the importance and/or conclusions of the paper.
2. Adding a small table with the measurement dates and specifications (e.g., location) would be very helpful.
3. Page 3, second paragraph: I would suggest excluding this paragraph or making it more concise.
4. Page 4, first paragraph: This is a really good section of the introduction, but it gets lost in the current structure of the introduction. Re-structuring or making the introduction more concise will help bring this paragraph more attention.
5. Page 6, lines 4-10: Why do the authors emphasize the calibration procedures for the AMS, when they are using data from other instruments too? I suggest moving this paragraph to the supplementary material if the authors wish to keep it.
6. Page 9: Were i-pentane and n-pentane measured and could the authors use the ratio (or i/n butane) to discuss the O&G influence further?
7. Figure 4: If possible to do without cluttering the figure too much, it would be helpful to have an outline of the O&G rich area on one of the maps in this figure.

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