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Interactive
comment

# *Interactive comment on* "The sensitivity of PM$_{2.5}$ acidity to meteorological parameters and chemical composition changes: 10-year records from six Canadian monitoring sites" *by* Ye Tao and Jennifer G. Murphy

**Anonymous Referee #4**

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Overall, the paper is well written and contributes meaningful analysis to the community. The authors could further justify their approach (general comment 1) and provide more supporting information (specific comment 2).

General comments: 1. Given the importance of meteorological drivers of pH (RH and T) indicated by the analysis, how did the authors justify the use of daily average RH, T, and composition led to the appropriate average pH? How important are diurnal variations in RH, T, and composition in dictating daily average pH?

2. The manuscript presents evidence that long-term changes in pH are driven by changes in RH and T (Fig 6-7), however, sulfate likely correlates with T. St. Anicet and Toronto do not have statistically significant changes in sulfate over the time period. Is pH at those sites related to sulfate?

Specific comments:

1. In a couple place, the authors mention "ion balance" which could imply they used a charge balance. I suggest rewording on page 1, line 9 and page 4, line 21. Page 4, line 21 indicates SNA contributed more than 80% of total charges. What is the remaining 20%? Salts (NaCl) and NVC are neglected. Are they important?

2. At a minimum, tabulated pH values should be provided in the SI. The authors should consider providing additional data and/or model inputs/outputs for data documentation purposes.

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