

## Supplementary Information

### The $\Delta^{17}\text{O}$ and $\delta^{18}\text{O}$ values of simultaneously collected atmospheric nitrates from anthropogenic sources – Implications for polluted air masses

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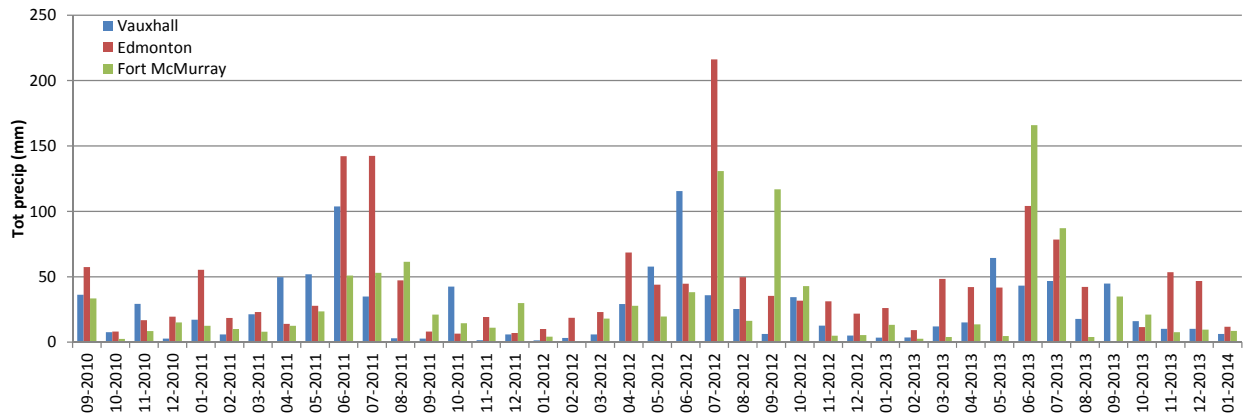
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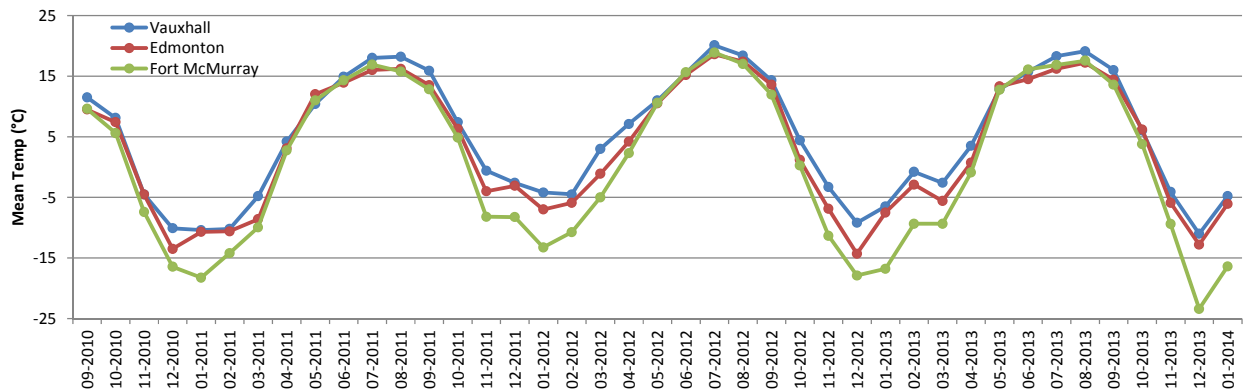
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10

A



B



15 **Figure SI-1. Monthly total precipitation (A) and mean temperature (B) for the Vauxhall region (feedlots and gas compressors), great Edmonton area (CFPP, chemical and metal industries, city traffic, fertilizers and oil refinery), and oil sands mining lower Athabasca region, recorded over the period of sampling. The Edmonton area and Vauxhall meteorological conditions only differ from the oil sands ones by having higher winter temperature.**

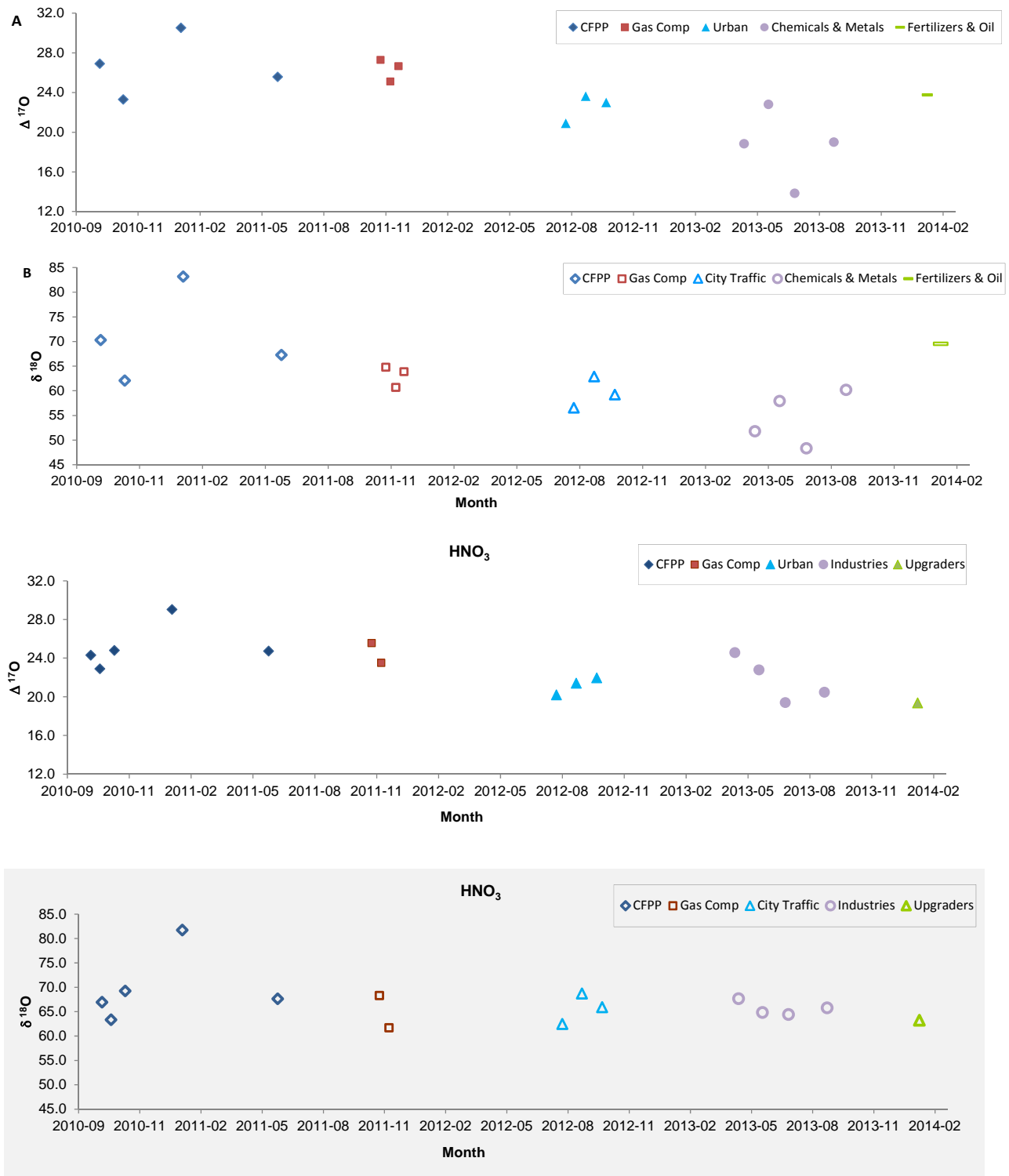


Figure SI-2. Oxygen isotopic variations as a function of sampling period for each source type: p-NO<sub>3</sub><sup>-</sup> (A)  $\Delta^{17}\text{O}$  and (B)  $\delta^{18}\text{O}$  values; and HNO<sub>3</sub> (C)  $\Delta^{17}\text{O}$  and (D)  $\delta^{18}\text{O}$  values.

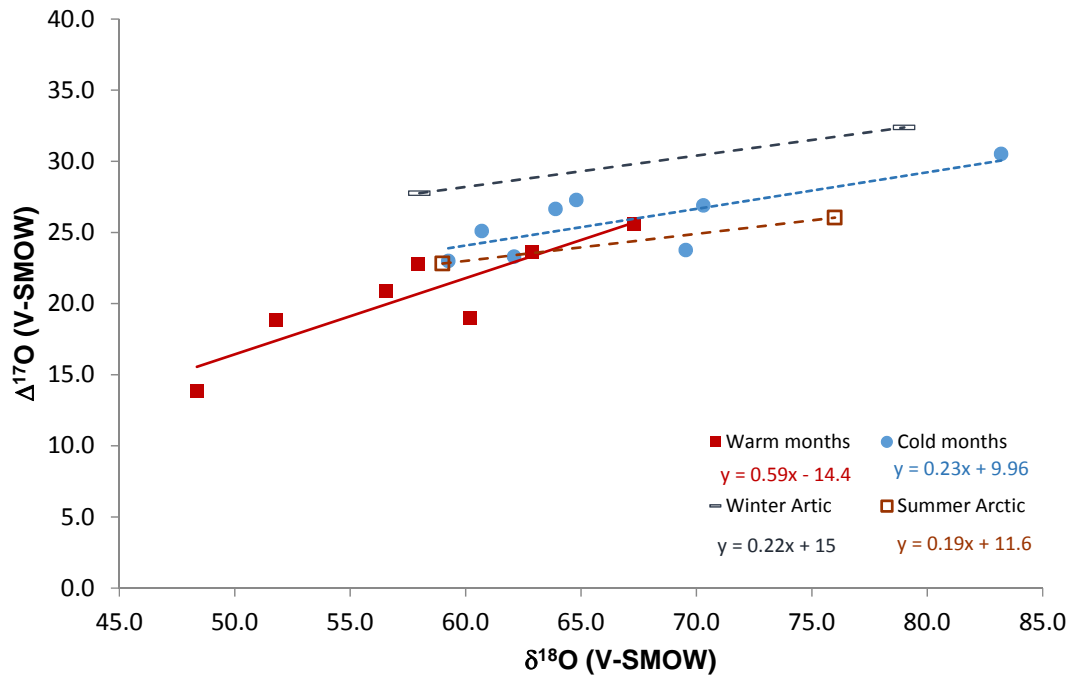


Figure. SI-3. Triple oxygen isotopic results for  $\text{HNO}_3$  from Southern and central Alberta and  $\text{p-NO}_3^-$  for High Arctic (Morin et al., 2008).