Atmos. Chem. Phys. Discuss.,
https://doi.org/10.5194/acp-2017-1023-RC1, 2018
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Stable sulfur isotope measurements to trace the fate of SO_2 in the Athabasca oil sands region" *by* Neda Amiri et al.

Anonymous Referee #2

Received and published: 2 February 2018

The paper presents interesting information about sulfur isotopes fractionation in the aerosols taken from a monitoring site next to the Wood Buffalo Air Monitoring Station 13 (AMS13), south of Fort MacKay in the Athabasca oil sands region from August 13 to September 5, 2013 as part of the Joint Canada. Although the analyses and data obtained are very good, they represent a short period of time and do not reflect the variability on a seasonal scale. The discussion of sulfur compounds and isotopes transformation processes does connect much to effects of natural variability and emission from land surfaces on regional scale. More information about these and impact on weather/climate and the environment are needed to motivate why this study has been done. Also, the conclusions do not show what are the new findings by the work that differ from earlier investigations. I think the paper needs to consider the points

mentioned above for possible publication in ACP.

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2017-1023, 2018.