

## ***Interactive comment on “One year monitoring of volatile organic compounds (VOCs) from an oil-gas station in northwest China” by Huang Zheng et al.***

### **Anonymous Referee #3**

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This paper describes one year continuous monitoring of VOCs around an oil-gas region in northwest China in order to clarify atmospheric behavior of VOCs in such region. The authors revealed temporal variations such as seasonal and diurnal variations of VOCs around the oil-gas region and analyzed factors of such variations. In addition, they performed source analyses of VOCs and discussed source of VOCs in this region quantitatively.

#### General comments:

As the authors mentioned, VOCs are main precursors of tropospheric ozone and it is important to clarify atmospheric behavior of VOCs. Examples of VOC observations in

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oil-gas regions are low, especially; there are few continuous observations of VOCs with high time resolution. The authors supply valuable data and information. In addition, the authors conducted quantitative source analyses of VOCs. I recommend this paper to be published in Atmospheric Chemistry and Physics. However, I found several dubious points in this paper. The authors should revise appropriately.

Specific comments:

The authors performed several discussions using  $\text{NO}_2$ . Why do the authors use  $\text{NO}_2$  instead of  $\text{NO}_x$ ? I think it is preferable to use  $\text{NO}_x$  instead of  $\text{NO}_2$  (or both  $\text{NO}_2$  and  $\text{NO}_x$ ) for many of such discussions. The authors would observe  $\text{NO}$  and  $\text{NO}_2$  because they used a TEI  $\text{NO}_x$  analyzer based on a chemiluminescence method.

$\text{NO}_2$  and  $\text{NO}_x$  concentrations measured by a TEI  $\text{NO}_x$  analyzer are not accurate because of interferences of descendant species of  $\text{NO}_x$  such as  $\text{HNO}_3$  and PANs. The authors should evaluate such interferences. Especially, organic nitrates could interfere the values of  $\text{NO}_2$  concentrations obtained by a TEI  $\text{NO}_x$  analyzer under high concentrations of large hydrocarbons.

On page 9, lines 6-7, "It should be noted that VOCs... as well as BLH.": I think  $\text{NO}_2$  concentrations are controlled solar UV and concentrations of  $\text{NO}$  and  $\text{O}_3$  as well as BLH, but are VOCs controlled concentrations of  $\text{NO}$  and  $\text{O}_3$ ? (I don't think so.) The authors should discuss this matter separating VOCs and  $\text{NO}_2$ .

Table 1: The authors should explain  $r^2$ .

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2017-828>, 2017.

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