

Atmos. Meas. Tech. Discuss., referee comment RC1  
<https://doi.org/10.5194/amt-2021-65-RC1>, 2021  
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## Comment on amt-2021-65

Anonymous Referee #1

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Referee comment on "Estimation of ship emission rates at a major shipping lane by long path DOAS measurements" by Kai Krause et al., Atmos. Meas. Tech. Discuss.,  
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The authors reported a new program for studying ship emission rates based on active remote sensing observations. Monitoring of ship emissions is usually carried out using in situ instruments on land, which depend on favourable wind conditions to transport the emitted substances to the measurement site. LP-DOAS measurements overcomes this shortcoming, and it realized real-time observation. However, there are some issues that need to be explained by the authors. After these minor corrections, this manuscript can be accepted by AMT.

- The measured  $\text{NO}_x$  and  $\text{SO}_2$  concentration and their emission rates should be validated with the measured data.
- How to characterize the emission concentration and emission rates of  $\text{NO}_x$  and  $\text{SO}_2$  at the ship chimney mouth?
- During the analysis, the authors should quantify the impact of  $\text{NO}_x$

Please also note the supplement to this comment:

<https://amt.copernicus.org/preprints/amt-2021-65/amt-2021-65-RC1-supplement.pdf>