

## ***Interactive comment on “On the diurnal, weekly, seasonal cycles and annual trends in atmospheric CO<sub>2</sub> at Mount Zugspitze, Germany during 1981–2016” by Ye Yuan et al.***

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This is an interesting manuscript. It is good to see that diurnal, weekly and seasonal cycles in CO<sub>2</sub> are being investigated by the ground-based CO<sub>2</sub> measurement community. The importance of the seasonal cycle is obvious. The value of accounting for the diurnal and weekly cycles has been pointed out in previous work from a model perspective such as Nassar et al. (2013) and Liu et al. (2017), which would be worthwhile to cite in revisions to this manuscript. These cycles in anthropogenic CO<sub>2</sub> emissions have implications for the design of future satellite systems aiming to quantify anthropogenic CO<sub>2</sub> emissions at various scales to support emission reduction efforts.

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### References

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Y. Liu, N. Gruber, D. Brunner. Spatiotemporal patterns of the fossil-fuel CO<sub>2</sub> signal in central Europe: results from a high-resolution atmospheric transport model. *Atmos. Chem. Phys.*, 17, 14145–14169, 2017, <https://doi.org/10.5194/acp-17-14145-2017>

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