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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Consumption of atmospheric O_2 in an Urban Area of Tokyo, Japan derived from continuous observations of O_2 and CO_2 concentrations and CO_2 flux" *by* Shigeyuki Ishidoya et al.

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Concerning the treatment of urban fluxes, issues about proper QAQC treatment of eddy covariance fluxes have been raised. It is noted that (depending on the application) eddy covariance fluxes should generally be filtered according to several well established criteria (e.g. stationarity, u*, stabilitiy). An appropriate method can for example be found in Lee et al. Handbook of Micrometeorology (ISBN 978-1-4020-2265-4). Chapter 9. Foken et al., Post field data quality control.

Another important issue for urban flux calculations is the treatment of sonic anemometer rotation (e.g. planar fit, or double rotation depedning on the application). These rotations can be quite sector dependent in urban areas (see for example https://www.atmos-meas-tech-discuss.net/amt-2019-272/amt-2019-272.pdf). It should be noted which rotation was used, and whether it was applied sector dependent.

Flux footprint: Neftel et al. based their footprint model on Horst and Weil, and evaluated the footprint model specificially for grassland, which has a completely different surface characteristic than an urban landcover. While there is currently no true parameterization for the urban roughness layer, an updated footprint model by Kljun et al. (https://www.geosci-model-dev.net/8/3695/2015/), that was developed for tall canopies, would perhaps give a better representation of the urban flux footprint.

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