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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Eddy covariance measurements of CO_2 and energy fluxes in the city of Beijing" *by* H. Z. Liu et al.

Anonymous Referee #2

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The manuscript describes a long-term (4 years) experiment on CO2 and energy fluxes in the urban agglomeration of Bejing, China. The experiments were conducted and data analyzed in a careful fashion. The results (e.g., Tab. 1) are within the limits of CO2 fluxes as published for other cities worldwide. A lot of the site-specific information and data interpretation, derived from a data subset of this manuscript, can be found in Song and Wang, 2012. This manuscript offers no really new insight into the processes driving urban CO2 exchange or novel data analysis methods. Therefore, the results are more or less of regional interest. The ACP aims and scope (http://www.atmospheric-chemistry-and-physics.net/home.html) say: "The journal scope is focused on studies with general implications for atmospheric science rather than investigations that are primarily of local or technical interest". Therefore, the manuscript is not suitable for publication in ACP.

Specific comments:

The opinion that China is a developing country (p 7678, lines 10), seems out of place here, specifically when it is combined with the statement that "the degree of industrialization is relatively lower than that in developed countries" (page 7679, lines 25/26). Does that, in the opinion of the authors, apply to Beijing?

in Figure 1, the text inserts are very hard to read for missing contrast and overlap with contour lines

page 7683, lines 25/25: The sentence is unclear. Further, you talk about the "sonic temperature" here, while you talk about the "virtual temperature" in line 3 of the same page. Consistency would be preferable.

page 7684, lines 8 – 12: It seems acceptable as a general statement that u* at night is higher in urban settings than in rural environments, for the reasons given. However, that is not enough justification not to do the test. Note that stable conditions often occur (Fig. 3). It would have been better, and more informative to the reader, to present the u* statistics.

page 7684, lines 24-26: This sentence seems to need editing.

Fig. 5 a, b, and c, are poor presentations of the data set. In Fig. 5d, how was the Bowen ratio measured for July and August 2007, when no data was available, was it calculated from the filled-in data?

page 7686, lines 9-10: Figure 5c leaves the impression that negative Fc fluxes were also observed throughout the experimental period, not "only .. occasionally", as suggested here.

chapter 4.4: Some numbers are given with too high level of precision, 4 significant digits for fluxes!

page 7687, lines 25-26: Given the small difference between weekday and weekend

numbers (Fig. 7, all well within one standard deviation), this conclusion seems not justifiable.

page 7687, line 28 through page 7688, line 1: It seems bizarre to use the Fc measurement to draw conclusions concerning the traffic intensity. Normally it should be the other way round: traffic counts should help to interpret the Fc flux measurement. Which role plays the Beijing-Tibet Expressway, which passes through the footprint in N-S-direction?

page 7688, lines 23-34: Again, which role plays the Beijing-Tibet Expressway, which passes through the footprint in N-S-direction?

page 7689, line 22: This seems to be in contradiction to the notion on page 7680, lines 25-28.

conclusions: the conclusions from this analysis offer no new information. All the conclusions can be found in earlier publications, for example Song and Wang, 2012.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 7677, 2012.