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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Some aspects of the energy balance closure problem" *by* T. Foken et al.

Anonymous Referee #1

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The paper discusses the much debated failure of the micrometeorological measurements to close the energy budget and uses of ogive analysis in order to study the effect of the non-infinite averaging interval on the fluxes. This issue is of general relevance for the flux measurement community. The main conclusion of the paper, that the underestimation of the turbulent energy flux is due to the non-infinite averaging interval, is not very well substantiated. This means that the authors should substantiate their claim that "it must be assumed that a reduction of the turbulent fluxes also occurs if the ogive function has an extreme value for time periods shorter than 30 min and decrease for longer integration times" (page 3389). Also, as no dependence of the relative residual on the ogive ratio can be seen in the figure 3, it may seem that the shape of the ogive is not connected to the energy imbalance and the problem not related to the omission of low frequencies.

The analysis conducted using low and high frequency parts could be written more

clearly. Especially the analysis of the temporal changes of the fluxes (p. 3386, lines 12-14) should be written more clearly.

It is not clear to me what do the authors mean by the “possible minimum value” used on page 3389, lines 16 and 19.

The notion that the residual of the energy balance has its lowest value on June 9th (page 3390, lines 25-27) is not evidently seen in figure 4.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 3381, 2006.