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Comment

***Interactive comment on “Quality control of  
CarboEurope flux data – Part I: Footprint analyses  
to evaluate sites in forest ecosystems” by  
M. Göckede et al.***

**Anonymous Referee #2**

Received and published: 21 December 2007

Originality: Fair  
Technical Quality: Good  
Clarity of Presentation: Good  
Significance: Fair

Recommendation of Referee: Accept after minor revisions

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## General Comments

This paper applies earlier described approaches for evaluation of data quality from flux towers. A footprint approach and a quality assessment approach are combined and applied to momentum flux, latent and sensible heat flux and CO<sub>2</sub> flux measured at 25 forested sites of the CarboEurope-IP network.

Overall, the paper is well written and the subject is appropriate for the journal. The paper does not present novel ideas, tools or data, but is an application of previously published approaches to a large number of data sets from several measurement sites. Listed below are my main concerns and some specific comments. On the basis of them, I believe that the paper can be accepted after minor revisions.

## Main Concerns

1) As mentioned above, the authors apply a so-called footprint climatology and a data quality assessment to flux data of 25 sites. Examples of the footprint climatology and the data quality evaluation are shown and discussed. However, the final result, namely the changes in the fluxes has not been addressed, even though this would be of high interest. I thus ask the authors to include such an analysis, e.g. the discussion of CO<sub>2</sub> fluxes at each site before / after filtering the data on the basis of the above approaches. Error bars or uncertainty measures could than point out the importance of the method.

2) The understanding and reconstruction/traceability of the results is very difficult without detailed knowledge of the articles where the methods applied in this study are introduced. The authors refer to the according literature wherever needed, but this does not prevent the reader from having to read this literature for better understanding. I suggest including a few paragraphs giving an overview of the footprint climatology and the data quality flags.

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3) Some few parts of the manuscript are repetitive and should be shortened.

## Specific Comments

1) Page 4025, title: The title does not clearly reflect the content. It should also include the data quality analyses.

2) Page 4032, line 22: How large was the difference between actual measurement height and modelled measurement height?

3) Page 4032, line 23: Which parameters were used to derive the atmospheric stability? Give details on the clustering.

4) Page 4032, line 23: When and how do wind direction and wind speed influence the footprint analysis?

5) Page 4037ff: The results of Section 4.1 should be displayed in an additional Table for better overview of the findings.

6) Page 4040 to 4041, lines 16 to 4: This section is redundant; the findings are repeated in the following sections. Please shorten Section 4.2.

7) Page 4040, line 23: Give a short description of the ITC parameterisation.

8) Page 4045, line 27ff: Not applying the  $u^*$ -filter is a fundamental intervention. This fact needs to be declared already earlier, e.g. in Section 2.

9) Page 4059, Figure 1: Mention how stable stratifications are characterised.

10) Page 4059, Figure 1: How do varying wind speeds influence the results?

11) Page 4059, Figure 1: Describe how a 90%-footprint can be derived from the footprint peak percentages given in this figure. By 90%-footprint I mean the contribution to the total flux. The latter measure is more commonly used and more familiar to potential

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users.

12) Page 4059ff, Figures 1 to 6: Please consider that some readers will have to print or copy your manuscript on mono-colour printers. Even though the colour-plots are very comprehensive, they are not legible in black and white.

## Technical Corrections

1) Page 4035, line 4: Insert a colon: ... in the data quality: isolated...

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Interactive comment on Biogeosciences Discuss., 4, 4025, 2007.

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