

***Interactive comment on* “ExchanGE processes in mountainous Regions (EGER) – overview of design, methods, and first results” by T. Foken et al.**

Anonymous Referee #1

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The paper describes detailed measurements conducted during two intensive observational periods in a spruce forest at an existing monitoring site in the German mountains and presents some initial results of the subsequent data analyses and modeling efforts. The main objective of these measurements is the investigation of the turbulent exchange of energy, mass, and reactive and non-reactive trace gases between the surface and the atmosphere.

The amount of data collected during the two IOPs is impressive and provides many opportunities to investigate surface-atmosphere exchange processes. It is obvious from reading the paper that investigators have spent an enormous effort ensuring a

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data set of high quality and that they have made considerable progress in the analyses of these data. The scientific analyses in the paper appear solid.

Unfortunately though, I cannot recommend the current manuscript for publication. The major issue that I have with the paper is its excessive length (101 pages) and lack of focus. I have spent a lot of time reading the text but oftentimes find myself lost in the details and wondering what problems the authors are trying to solve or what question they are trying to answer. Also, the manuscript oftentimes comes across as if many parts were originally written separately and then combined together without putting a lot of effort in making sure there is a smooth transition and coherent storyline. This already starts in the Introduction. The text in the introduction comes across as very scattered and disorganized. The goal of the paper should be explained early on in the Introduction. If the goal of the paper is to describe the experiment with some initial results, provide motivation and goals of the experiment in the Introduction. The impression from the Introduction might be that the goal is to investigate coherent structures, since a considerable amount of text is spent on motivating this particular aspect. However, at the end of the Introduction, the authors state that the paper intends to describe the experiment and some initial results. Currently, it appears as if the authors attempt to address at least these two goals (experiment overview and coherent structures) that make the paper too long and unfocused. I suggest that the authors split the paper in two parts, with one paper describing the experiment and only a few initial results and then a second paper focusing on the investigation of coherent structures and coupling stage on surface-atmosphere exchange of passive and reactive trace gases.

I have a difficult time extracting the major results from the paper, even after reading the conclusion sections. A coherent storyline explaining the problem, followed by goals of the papers, research approach, and results, is missing.

While the project under which the two IOPs were conducted is entitled “ExchanGE processes in mountainous Regions (EGER)”, there is nothing in the paper that explains potential effect of mountainous terrain on the exchange processes. I therefore

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find it misleading to have EGER in the title of the paper. Rather mention the canopy-atmosphere exchange in the title and then mention in the Introduction that the experiments were conducted in the framework of a larger project called EGER.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 26245, 2011.

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