Review Biogeosciences Discussion of

Franz et al.: **Evaluation of simulated biomass damage in forest ecosystems induced by ozone against observation-based estimates**

by Marcus Schaub and Marco Ferretti

We acknowledge the author's efforts of adding clarifications to the manuscript and considering our comments. The quality of the manuscript has considerably improved and – in our opinion – is ready to be published after addressing the following points:

(i) Title: The title "Evaluation of simulated biomass damage in forest ecosystems induced by ozone against observation-based estimates" is true when only the part related to the experiments with young trees is concerned. Mature trees are simulated, not actually observed. We therefore suggest to change the title accordingly. We consider this as an important point as the title is not a minor element and will influence the perception and how the manuscript will be received.

(ii) Young *vs*. mature trees: While it is perfectly justified to show the impact of the different response functions on the possible outcomes of seedlings experiment, extrapolation to forest ecosystem remains a strong simplification. We suggest that authors should clearly state that they use dose-response relationship derived from experiments with young trees for their evaluations regarding mature trees, assuming such relationships hold valid, but that they are well aware this may not be the case. In their new discussion paragraph (p. 19, ll. 9-13) they may also suggest the possible consequences of this assumption.

(iii) It is true that the manuscript deals with only one part of the entire EMEP approach. Nevertheless, the risk evaluation relies very much on the dose-response functions. We still believe that the authors should comment on possible, related consequences of their findings in this respect.

(iv) Throughout the manuscript, the authors used the terms "young trees", "cuttings", "saplings", "seedlings" and "small trees" to describe the experimental trees. We suggest to bring in some consistency by using only e.g. young trees.

Specific comments:

Page 1, line 10: delete "field" in "…against field data …" as this is misleading. Data are from experiments not from field observations.

Page 1, line 11: add "… experiments conducted with young trees from European trees species …"

Page 1, line 12: delete "simulated" in "… functions lead to simulated whole-tree …" as this is redundant; it is clear that functions lead to simulated results.

Page 3, line 3: replace small trees by young trees (see comment iv)

Page 8, line 17: cuttings? (see comment iv)

Page 19, line 27: correct "Whether the simulation of injury … can indeed be transferred to adult trees or not to yield realistic …"