**Geoscientific
Model Development
Discussions**

Interactive comment on "A generalized tagging method" *by* V. Grewe

Anonymous Referee #1

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Grewe (2012) describes a method for attributing the effects of different processes ("tagging") on the state variables of numerical models such as chemistry-climate models. This work builds upon, and generalises previous work which was concerned with the use of tagging techniques for the attribution of source contributions to secondary chemical species such as ozone, and attribution of temperature to different radiative forcing processes.

By deriving the formalism and showing examples, this paper will be useful to model developers wishing to implement such a tagging scheme in their models, and thus falls clearly within the scope of the journal. I recommend that this paper be published subject to minor revisions.

While generally quite clearly written, there are a number of minor grammatical issues which detract from the overall quality of the paper.

Throughout the manuscript, the author uses the word "like", which is of course grammatically correct, but seems overly informal in the context of a scientific paper. Instead, formulation involving "such as" would be more appropriate.

Page 3312, line 18: "how sensitive reacts" -> "the sensitivity of"

Page 3313, line 17: "than chemical species, only" -> "than only chemical species"

Page 3314, line 11: "on temperature" -> "to temperature"

Page 3315, line 3: "equal" -> "equivalent"

Page 3315, line 4: "what impact has category j" -> "what is the impact of category j"

Page 3319, line 6: "to calculated" -> "for calculating"

Page 3320, line 3: "to small" -> "too small"

Page 3320, line 11: "no reaction occur" -> "no reactions occur" OR "no reaction occurs"

Page 3321, line 12: "allows to calculate" -> "allows the calculation of"

Page 3321, line 12: "contribution" -> "contributions"

Page 3321, line 13: "on state variables" -> "to state variables"

Also, I don't see the point of Section 3.2; bimolecular reactions are equivalent to multibody reactions (as presented in Section 3.3) with m = 3. I would suggest removing Section 3.2, renaming Section 3.3 "Chemical reactions", and mentioning here that bimolecular reactions and higher-order reactions can be treated similarly.

Interactive comment on Geosci. Model Dev. Discuss., 5, 3311, 2012.