

## ***Interactive comment on “A kinetic chemistry tagging technique and its application to modelling the stable isotopic composition of atmospheric trace gases” by S. Gromov et al.***

**Anonymous Referee #2**

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This paper describes a generalized tagging technique for incorporating isotopes in chemical mechanisms. Isotopic compounds can be valuable for understanding source contributions and chemical processing in atmospheric chemistry. The development of this technique appears that it could be a valuable method for studying atmospheric isotopic composition.

While the coverage of this work is quite detailed and comprehensive, I found it very difficult to follow. I recommend giving many more specific examples (using real compounds and their isotopes, e.g.,  $^{13}\text{C}$  in  $\text{CO}$ , etc.) and showing how they relate to the generalized formulas. Explicit examples would be helpful starting at the end of Section

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2.1, and many later occasions.

I think the discussion of tags and tracers should distinguish these by saying that what you call 'tracers' should not affect the chemistry, as they are subsets of species that are solved in the mechanism. Where as isotopic compounds are a part of the complete mechanism.

While I recognize each author has their own style of writing, I found this article to be very verbose and chatty without helping to clarify things.

The English grammar needs some work. For example, p.207, l.24: "... do not let to exercise ...". p.209, l.14: "... is discussed complementary ...". I don't know what is trying to be said.

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Interactive comment on Geosci. Model Dev. Discuss., 3, 201, 2010.

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