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Geoscientific Model Development Discussions

Interactive comment on "TOAST 1.0: Tropospheric Ozone Attribution of Sources with Tagging for CESM 1.2.2" *by* Tim Butler et al.

Anonymous Referee #1

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The tagging introduction was particularly well-done and, by itself, is a nice contribution. The automated tagging system is also significant, but it is not totally clear what fraction of the work is automated versus manual in the text. The CH4 contribution and stratospheric N2O results are particularly valuable.

Overall, I had very few questions or comments, which is rare. My one concern is the level of detail provided about the manual updates for a new set of tags.

Line-by-line:

pg3,18-19 : The Sillman paper has an appendix where they derive the ratio of 0.5 (not 0.35). The 0.35 was an approximation when using a chemical mechanism that did not include some loss pathways (e.g., ROOH). It would be nice to be more clear about this.

pg4,5 : This reviewers understanding is that NO and RO2 are not tagged, but NO and RO2 reactions are apportioned proportional to NOy and NMHC.

pg4,17-21; pg5,1-4 : Interesting thing to note. Does your NO2_X_TAG ever react with RO2s? If so, could it make PAN and thus suffer a similar problem?

pg6,7 : and should be an?

pg9,1-2 : Given that NO3 has two odd-oxygens, why not attribute 1/2 to each?

pg12,21 :win?

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