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Geoscientific Model Development Discussions

Interactive comment on "Implementing marine organic aerosols into the GEOS-Chem model" *by* B. Gantt et al.

Anonymous Referee #1

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Gantt. et al. have implemented marine organic aerosol (MOA) primary emissions into GEOS-Chem and have used the model to look at MOA concentrations and aging. The article is very well written and clear. This is one of several MOA modeling studies from Gantt and co-authors. I do slightly wonder how much value there is in having this paper in the literature, since Gantt has already implemented MOA emissions into another model (and in GEOS-Chem itself), as have several other groups. However, I think they have presented enough new material, especially the comparisons to recent MOA-specific mass concentration observations and insights into MOA aging, to warrant publication in GMD subject to minor revisions.

Specific comments:

P5968, Line 3-4: Also cite Arnold et al. (2009) here about the SOA/POA contribution

to marine organic aerosol?

P5969, Line 29: So the main model development step here was just bringing the online MOA emissions into the GEOS-Chem standard code? What exactly did this entail? Is it any different than the previous Gantt implementation into GEOS-Chem?

P5973, 1st paragraph, and Fig 1: The concentrations of MOA seem to be larger in the Northern Hemisphere summer (JJA) than the Southern Hemisphere summer (DJF). Of course, this is also the case for the emissions in Fig S1. Why is this exactly? One might expect stronger wind speed in the SH summer months (DJF).

P5975 Line 8: Mention that this is submicron sea salt only.

Interactive comment on Geosci. Model Dev. Discuss., 7, 5965, 2014.