

“A framework for expanding aqueous chemistry in the Community Multiscale Air Quality (CMAQ) model version 5.1” by Kathleen M. Fahey et al.

Response to reviewer #3

**The authors thank reviewer #3 for their comments and support for publication. In the following, we restate the reviewer comments and follow with our response in “bold” font.**

Fahey et al. presents an implementation of two new cloud aqueous phase chemistry options (AQCHEM-KMT and AQCHEM-KMTI) for the CMAQ model. The paper is well written and will be of interest to the readers of GMD, I therefore support its publication in GMD after issues raised Referees #1 and #2 have been addressed.

**We have attempted to address all of the comments/suggestions from reviewers 1 and 2. One can find additional details in the posted responses to those reviewers.**

Minor issues: - Page 9, Line 29: Should "in-line calculation of photolysis rates" be "online calculations of photolysis rates"?

**To be consistent with descriptions of the CMAQ photolysis module published elsewhere (e.g., Appel et al., 2016), we refer to these as “in-line” calculations. We have updated the other references to “inline” processes in this section to “in-line” as well.**

**References:**

**Appel, K.W., Napelenok, S.L., Foley, K.M., Pye, H.O.T., Hogrefe, C., Luecken, D.J., Bash, J.O., Roselle, S.J., Pleim, J.E., Foroutan, H., Hutzell, W.T., Pouliot, G.A., Sarwar, G., Fahey, K.M., Gantt, B., Gilliam, R.C., Kang, D., Mathur, R., Schwede, D.B., Spero, T.L., Wong, D.C., and J.O. Young (2016) Overview and evaluation of the Community Multiscale Air Quality (CMAQ) model version 5.1, Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-226.**