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Interactive comment on “Understanding atmospheric peroxyformic acid chemistry: observation, modeling and implication” by H. Liang et al.

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The manuscript cites Yang et al (2006) as indicating that "the radical product from the HCO + O₂ reaction could have a stable HC(O)OO structure." This point is not in question, as HC(O)OO has been detected at 25 Kelvin (J. Phys. Chem. A 2004, 108, 4228-4231). The question is whether HC(O)OO is sufficiently long lived (lifetime of at least ~10 seconds) to react with HOO under the conditions of the observations.

The results of Yang et al (2006) and those of Martinez-Avilla et al (2003: Chemical Physics Letters, vol. 370, pp. 313–318) suggest that HC(O)OO need only overcome

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a barrier of about 21 kcal/mole to thermally dissociate to HOO + CO. This might be consistent with a thermal lifetime of 10 seconds but does not offer strong support for that possibility.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 2055, 2015.

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