

Atmos. Chem. Phys. Discuss., referee comment RC2
<https://doi.org/10.5194/acp-2021-715-RC2>, 2021
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Comment on acp-2021-715

Anonymous Referee #2

Referee comment on "Comment on "Isotopic evidence for dominant secondary production of HONO in near-ground wildfire plumes" by Chai et al. (2021)" by James M. Roberts, Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-715-RC2>, 2021

I agree completely with what Jim Roberts said in his comment, i.e. that the PAN lifetime is/can be very long when $[\text{NO}_x] > [\text{HO}_2]$ (definitely the case here), and when $[\text{NO}_2]/[\text{NO}]$ is high (which is the case for essentially all samples described in Chai et al., Table 1), and that there is important NO_x chemistry that was not considered. As an example, In a biogenic hydrocarbon-impact environment such as the case for the wildfire plumes, organic nitrate production followed by uptake onto surfaces and hydrolysis to produce nitrate can be an important source of both particle nitrate that reacts to produce HONO, and of gas phase HNO_3 , if the particles are acidic. Dr. Roberts' comment should be published as is, in my judgment.