Review Comment on "Comparison of ozone measurement methods in biomass burning smoke: an evaluation under field and laboratory conditions" (Long et al. 2021)
By Bernays et al.

Biomass burning is becoming an increasingly important component of air quality as fossil fuel combustion becomes cleaner. It is important to be able to measure the ozone produced by wildfires and agricultural fires. As such the Long et al. paper calls into question the accuracy of ozone measurements with commercial instruments. The Comment from Bernays et al. states "the type of scrubber used was mis- identified as manganese dioxide (MnO_2), when in fact it was manganese chloride ($MnCl_2$)." If correct, it is essential to publish this Comment. My major point in this review is that Bernays et al must offer proof that the Thermo-Fisher 49i uses $MnCl_2$. Last I checked, the composition of the ozone killer was a trade secret. **A letter from Thermo-Fischer certifying that the composition of their ozone scrubber is or was $MnCl_2$ would make this comment convincing.**

Other points:
Gao et al. (2017) is really Gao and Jaffe (2017) – right?

It is not clear to me that Long et al. correctly accounted for the small humidity sensitivity of NO chemiluminescence for O3 detection. (Boylan et al., 2014). Bernays et al. should check this out and comment as appropriate.

Reading Long et al. or Bernays et al. one would think that ozone from biomass burning began to be understood in 2004 or even 2013. Some influential papers are given at the end of this review and should be cited.

[*Boylan et al.*, 2014; *Crutzen and Andreae*, 1990; *Crutzen et al.*, 1979]

Boylan, P., D. Helmig, and J. H. Park (2014), Characterization and mitigation of water vapor effects in the measurement of ozone by chemiluminescence with nitric oxide, *Atmos. Meas. Tech.*, *7*(5), 1231-1244.

Crutzen, P. J., and M. O. Andreae (1990), Biomass burning in the tropics: Impact on atmospheric chemistry and biogeochemical cycles, *Science*, *250*, 1669-1678.

Crutzen, P. J., et al. (1979), Biomass burning as a source of atmospheric gases CO, H2, N2O, NO, CH3Cl, and COS, *Nature*, *282*, 253-256.