Reply on AC1
Anonymous Referee #1

Referee comment on "Methane emissions responsible for record-breaking atmospheric methane growth rates in 2020 and 2021" by Liang Feng et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2022-425-RC2, 2022

This reviewer appreciates the quick response from the authors. Although I would like to clarify one point in case it was not well articulated in my initial review.

It is this reviewer’s understanding that previous work arguing for a role of chemistry claims that chemistry could explain some large fraction of the methane growth. My reading of this manuscript is that the central conclusion is that methane emissions are responsible for the methane growth. The former claim that a process can explain a phenomena is justified through forward simulations. In this reviewer’s opinion, arguing that a process is responsible for a phenomena requires a higher burden of proof. This reviewer was unconvinced that the numerical experiments presented in the initial manuscript meet the standard to justify the latter claim. This is why I suggested either reframing the conclusions to include appropriate caveats or presenting additional numerical experiments to fully justify the central claims. Apologies for any confusion in my initial review.