

Overview:

The manuscript “Quantification of methane emissions from hotspots and during COVID-19 using a global atmospheric inversion” by McNorton et al. describes the results of a high-resolution atmospheric inversion of methane (CH₄) emissions during 2019 and 2020. There is focus of many individual case studies of various scales, and investigation into the effect of the COVID-19 pandemic on global and regional emissions of CH₄.

The manuscript is much-improved since the previous iteration. Whilst I remain a little skeptical about the assumption that we should expect constant growth in emissions between 2020 and 2019 if the slowdown had not occurred, I do think that the authors have now made their reasoning more explicit and all assumptions and caveats are clearly documented.

Subject to very few small corrections, I am happy to recommend that this manuscript may be published.

Minor corrections:

Line 45: Rephrase – as written it sounds like the potential 2 ppb growth from OH variation is being contrasted against the 15.6 ppb observed global growth in 2020. However, it would be more sensible to compare it against the difference between the 2020 and 2019 growth rates. In this case, 2 ppb from OH might have accounted for around 35% of the increase in the growth rate between the two years (5.7 ppb), which is not insubstantial.

Line 48: No comma needed

Line 137: sector=specific -> sector-specific