Review of gmd-2022-80
Anonymous Referee #2

Referee comment on "OpenIFS/AC: atmospheric chemistry and aerosol in OpenIFS 43r3" by Vincent Huijnen et al., Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2022-80-RC2, 2022

The paper presents a complete description of the components of a configuration of the ECMWF IFS available to the community. A rather standard evaluation of the model results are provided through comparisons to ozonesondes, satellite observations of CO, NO2, and satellite and Aeronet AOD, demonstrating reasonable performance.

The paper, and in particular the Conclusions section, rather lacks clear recommendations for the use of this model. The limitations are acknowledged, and improvements planned for future versions are mentioned, but it would be nice to see some positive statements of the value of this current version. Some recommended applications could be mentioned.

I think the paper is appropriate for publication in GMD.

Technical corrections:

Abstract: define OpenIFS

l.40: define BASCOE

l.120: 'allows to study' should be 'allows study of' or 'allows one to study'
I.161: 'this last option' -> 'the latter option'

I.164: provide more details about the lookup table - what version of TUV was used (when were cross-section and quantum yield data updated)?

I.209-211: I found this sentence confusing - 'Following Remy et al ... as in Reddy et al.' Seems contradictory.