

Interactive comment on “kCARTA: A fast pseudo line-by-line radiative transfer algorithm with analytic Jacobians, fluxes, Non-Local Thermodynamic Equilibrium and scattering for the infrared” by Sergio DeSouza-Machado et al.

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We thank the anonymous referees for their detailed read of the paper and providing introspective comments, many of which have resulted in changes to the revised version of the manuscript. In particular we have improved the accuracy of the computed kCARTA radiances by changing our default options (now linear- in-tau, higher resolution spectral database in the 15 μm region). This update has already been pushed to github. We have also shortened the paper by removing the sections describing comparisons between the HITRAN/GEISA/CO₂ line-mixing databases, and the impact of

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spectroscopic uncertainties on TOA radiances. This has been replaced by a section where we compare kCARTA versus LBLRTM TOA radiances. Below we detail our responses to their individual concerns. For ease of review, we type-faced the reviewers questions in blue. When we refer to pages and line numbers in our answers, the context should make it clear whether we are talking about the original manuscript or our current revised manuscript.

Please see the attached file for our detailed responses.

Please also note the supplement to this comment:

<https://www.atmos-meas-tech-discuss.net/amt-2019-282/amt-2019-282-AC1-supplement.pdf>

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