

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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This paper documents a software package that is used by others, and therefore represents a useful contribution to the literature and is very appropriate for this journal. Since the software was used by the AIRS Science Team and others in product generation and will be used in future generation of products from hyperspectral infrared sounders, it is essential to get the details on the record. The authors describe their transmittance modeling with emphasis on approximations and limitations and highlight their innovations and the differences between their method and choices made by others

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in the field. The paper is well written and I recommend its publication with only minor corrections. I have one substantive comment and identify a number of typographical errors.

Substantive comment: This paper describes a particular incarnation of kCARTA which the authors are making available. It would be very helpful to have a version identifier for the version described in the paper, and perhaps further identification, if possible, of which previous versions have been widely used. This is particularly needed in the paragraph beginning at Line 132, where the phrase "we now use" is unclear as to which previous version is obsolete.

Typographical errors:

Line 28, add comma after "process"

Line 59-60, mismatched parentheses

Line 158, "Schwarzschild" is misspelled

Line 163, "radiation propagating" are both misspelled

Line 171, remove the extra comma

Line 242, unmatched bracket

Line 243, "again" misspelled

Line 322, remove comma after "i"

Line 334, mismatched parentheses

Line 335, coming "from" all

Line 493, "cloudy" should be "cloud"

Line 536, "A.B." should be Boynard, A.

Line 536, "P.M." should be Pommier, M.

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Line 536, "A.R." should be Razavi, A.

Line 537, "Chenm" should be "Chem"

Line 546, "lancono" should be "lacono"

Line 580, "humidity" misspelled

Line 584, list of authors is incomplete, at least add et al.

Line 613, "I.E. G." should be "Gordon, I.E."

Line 632, "Wm." should be removed

Line 649, "Karlsruhe", not "Karlsruhr"

Line 649, this link is dead. I find the paper at https://www.imk-asf.kit.edu/downloads/SAT/kopra_docu_part02.pdf

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