Geoscientific
Model Development
Discussions

Interactive comment on "Calculations of the integral invariant coordinates I and L^* in the magnetosphere and mapping of the regions where I is conserved" *by* K. Konstantinidis and T. Sarris

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Replies to Executive Editor Comments:

– We thank the editor for the review and the coordination of the discussion around the manuscript, which has considerably clarified and improved the paper, making more clear its methodology, purpose and conclusions. Below we address the specific comments of the Editor regarding the availability of the models used:

1. "– The paper must be accompanied by the code, or means of accessing the code, for the purpose of peer-review."

C2981

– See reply to comment no. 2 below.

2. "– All papers must include a section at the end of the paper entitled "Code availability".

– The code for particle tracer ptr3D V2.0 is based on the standard equations of motion as described, e.g., in equation 1.1 of Roederer [1970]; however it has been parametrized in terms of spatial and temporal resolution for use in the particular study (i.e., maximum and minimum spatial limits of particle tracing, epoch & solar wind conditions, and time-steps of particle trajectory integration); it has thus been tuned to work accurately and efficiently for the particles under investigation, and hence at this stage it is not a generic code that can be provided for use as a generic particle tracer; it is envisioned that its next stage (ptr3D V3.0) that is being developed will be sufficiently tested to be able to stand on its own as a general particle tracer code, that can be used for any range of particle energies, time periods or regions.

To this extend, the following text has been added in section 7:

"ptr3D V2.0 is a particle tracing code developed by the authors based on the equations of charged particle motion under the Lorenz force, as described in detail in the respective chapter of this paper, and its results can be verified by any other particle tracer. In its current version (V2.0) it has been tuned to work accurately and efficiently within the region, times and energies of the particles under investigation, and hence at this stage it is not a generic code that can be provided for use as a generic particle tracer; it is envisioned that its next version (ptr3D V3.0) will be released as a general particle tracer code, that can be used for any range of particle energies, times or regions."

3. "– All papers must include a model name and version number (or other unique identiﬁﬁer) in the title. ".

– The particle tracer code name and version is ptr3D V2.0. This has been added in the text in the title, as well as has been corrected in the text, in lines: 19, 105, 107, 114,

121, 139, 144, 151, 154, 161, 166, 182, 192, 224, 238, 278, 283

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