

Interactive comment on “Testing the Electrodynamic Method to Derive Height-Integrated Ionospheric Conductances” by Daniel Weimer and Thom Edwards

Anonymous Referee #1

Received and published: 22 September 2020

The paper presents a model of height integrated ionospheric conductance that is derived from results of other dedicated empirical models. The manuscript is well written, in most part clear and understandable and potentially suitable for publication at Annales Geophysicae.

There are few comments, that the authors shall addresses:

1. The model is a composite of different empirical models. Quantify the uncertainty and/or error that accumulates by using the empirical models to build another one.
2. This point relates to point 1. The Discussion mentioned a row of error that might be in the model results. Certainly, the small-scale variation cannot be captured, but this is

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not what would be expected from the empirical model and is quite clear. Also, as the major source of error, an uncertain solar wind measurement is mentioned. However, it needs to be checked how this is valid and that uncertainties from point 1, may not be more important.

3. The conclusion repeats earlier finding from other authors and mention the shortcomings of the model results submitted here, but that the results might be of some value to the community. This again calls for a quantification, if rough, of the errors expected. To which application the value is expected?

4. L 23 says that earlier formulars are confusing and that the authors applied a simpler formula. What does justify the simplification?

5. I had sometimes the impression that not the most recent developments of certain areas are referred to, such as for AMIE, SECS method, or NRLMSIS. Please check about newer developments in these fields.

6. What is the opinion of the authors if direct observations near the E region would enhance their findings, such as is provided by a satellite mission like Daedalus? (<https://daedalus.earth>)

Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2020-60>, 2020.