Annales Geophysicae Discussions

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Comment on angeo-2021-16

Michael Kosch (Referee)

Referee comment on "Types of pulsating aurora: comparison of model and EISCAT electron density observations" by Fasil Tesema et al., Ann. Geophys. Discuss., https://doi.org/10.5194/angeo-2021-16-RC1, 2021

This manuscript presents a comparison of EISCAT radar versus model generated (using POES satellite data) electron density profile comparisons during pulsating aurora events observed optically. As expected when using satellite data, the observations are only approximately coincident in the spatial dimension. The data set is new and the manuscript is well written. However, substantial conclusions are lacking and there are several other improvements needed before publication can be recommended. These are listed below:

L110: "stirations" spelling error.
L141: What is meant by "warming up the ionosphere"? Please explain.
L143: "agreement...is good" is highly subjective. What is the definition of "good"? Looking at the plots suggests that "good" is half an order of magnitude. Please define "good" and state what the average difference is of the comparison over the height range of interest.
L180: "ionization around" should be "ionization layer around".
L185: "in to patch" should be "in to a patch".
L209/21: "very well", please see comment on L143.
L240: "very good agreement", please comment on L143.
Figure 1: This figure is never introduced in the text. Please do so, or remove it.
Figures 2, 4 & 6: Please include units on the colour bars.
Figures 3, 5 & 7: The blue dot is hard or impossible to see in the images. Please use something clearer, e.g. yellow dot or cross.
Figure 3 caption: "model and EISCAT" should be "model (blue) and EISCAT".
Figure 5 caption: "relative auroral intensities" should be "relative auroral intensities (j)" and the end of this sentence should indicate that the red and blue dots can be found in panels "(a-d)".