

Interactive comment on “Observations of precipitation energies during different types of pulsating aurora” by Fasil Tesema et al.

Anonymous Referee #2

Received and published: 9 August 2020

Tesema et al. used data from all-sky Cameras, EISCAT radars and KAIRA to investigate precipitating electron energies during different types of pulsating aurora and found different statistical altitude profiles of electron density and cosmic noise absorption for different types of aurora. The results are important for further understanding of the origins of electrons responsible for each type of pulsating aurora. However, the categorization process in this study needs more clarification as it is important for the following statistical analysis. More detailed comments are presented below.

Major comments:

1. The FoV of EISCAT is pretty small compared to ASCs. And PPA and APA are sometimes hard to be distinguished from keogram and ewograms. For example, the first shading area in the ewogram of Figure 2 seems like a mixture of PPA and APA.

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How reliable is your categorization process? It would be helpful if a few movies of ASC images with FoVs of EISCAT are provided.

2. The red shading area in the keogram of Figure 2, the auroral structure in the EISCAT FoV seems to be more like auroral rays or streamers to me. Though there are pulsating aurora at lower latitudes. Is it possible some of your events are discrete auroras other than pulsating auroras?

3. PPA, APA and PA may be alternately presented in the EISCAT FoV in a short time period. How fine are you classifying them?

4. What is the beam size of KAIRA around the FoV of EISCAT? It's better to present FoVs of KAIRA beams in Figure 1 as well. Is it possible there are different types of pulsating aurora in the beam?

Minor comments:

1. Lines 81-83: The definition of PA and PPA seems the same to me here and is inconsistent with lines 132-133.

2. Line 128: ewogram – from which latitude is the ewogram constructed? Please clarify.

3. Figure 4: It's better to change the vertical axis into Glat, so it's easy for readers to compare the riogram with keograms.

Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2020-43>, 2020.