

Response to the Topic Editor and Anonymous Referee #1

Manuscript: *Relativistic runaway electron avalanches: unified density-dependent scaling and transport*

Manuscript No.: egusphere-2026-2078

The final technical corrections requested by the Topic Editor and Anonymous Referee #1 have been implemented in the manuscript. The changes are detailed below.

Comment	Response	Changes in the manuscript
1. <i>The meaning of the fitted density exponent, a, is difficult to understand just from the abstract without reading the manuscript and seeing the equation (and Figure). We suggest removing it from the abstract (or describe it better) and keeping only the note about an additional density-dependent term in the preceding sentence.</i>	The fitted density exponent a and its numerical value have been removed from the Abstract, as suggested. The statement describing the additional density-dependent term and the resulting improvement of the fit has been retained.	The sentence reporting and interpreting a was removed from the Abstract. The Abstract now states: “Incorporating an additional density-dependent term reduces this scatter and improves the fit, increasing the coefficient of determination from $R^2 \approx 0.90$ to $R^2 \approx 0.99$.”
2. <i>The “ESTAR” should be introduced in the abstract.</i>	ESTAR has been introduced in the Abstract by identifying the database and its source.	The Abstract now states: “...while the density dependence of electron energy losses is accounted for using stopping-power data from the National Institute of Standards and Technology (NIST) ESTAR (Stopping Powers and Range Tables for Electrons) database.”
3. <i>The term “longitudinal” is rather confusing when speaking about the electron density profile (abstract line 13 and also in the text on line 86). What about vertical or height profile?</i>	The terminology has been revised as suggested. “Longitudinal” has been replaced by “vertical” where referring to the electron profiles and the development of the electron and gamma-ray populations through the vertically oriented electric-field region.	The Abstract now refers to “vertical electron profiles.” The corresponding terminology in the main text has also been revised to “vertical development of electron and gamma-ray populations” and “vertical profiles of the electron population.”
4. <i>Figure 1 caption. the plots a) and b) should be mentioned/specified in Figure caption. Similarly, Figure 6 caption.</i>	The captions of Figures 1 and 6 have been revised to explicitly identify and describe the individual panels.	The Figure 1 caption now specifies panels (a) and (b) and identifies the standard and density-dependent parameterizations, respectively. The Figure 6 caption now identifies panels (a)–(d) as Aragats, LHAASO, Lomnický Štít, and Nor Amberd, including the corresponding electric-field values.