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Interactive comment on "Evaluation of Monte Carlo tools for high energy atmospheric physics" *by* Casper Rutjes et al.

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Third comment on the paper submitted to Geoscientific Model Development (GMD) "Evaluation of Monte Carlo tools for high energy atmospheric physics" by Casper Rutjes, David Sarria, Alexander B. Skeltved, Alejandro Luque, Gabriel Diniz, Nikolai Østgaard, and Ute Ebert (gmd-2016-147). A.Chilingarian, Yerevan Physics Institute, Armenia ". . .there seems to be a difference in terminology here. Dr. Chilingarian clearly states now and also illustrates in his Figure 1, that he uses the term "secondary cosmic particle" for any energetic particle in the atmosphere, independently of whether it was created by a cosmic ray or by radioactive decay or by runaway avalanches of thermal electrons in the electric fields of a thunderstorm. In contrast, we use "cosmic" only in relation with particles coming from outside the Earth's atmosphere."

The new topic of high-energy atmospheric physics (HEAP) adopted knowledge from both atmospheric physics and high-energy astrophysics, and consequently groups of experts from both previously non-strongly overlapping communities. Therefore it is very important to use scientific terminology appropriately.

"particles coming from outside the Earth's atmosphere" in cosmic ray astrophysics communities called primary cosmic rays; and particles from cascades initiated by primary cosmic rays in interactions with terrestrial atmosphere called – secondary cosmic rays.

"The discussion is interesting, but it is out of the scope of the paper"

As I mention in my first comment the code verification problem 9topic of reviewed paper) is very important from technical point of view. However, it did not tell anything about how useful the code is for understanding nature of complicated HEAP problems. There exist thousands papers on simulations of particle cascades in atmosphere, but very few of them contain comparisons with experimentally measured parameters. My concern was that to firmly establish HEAP as new scientific discipline community needs multiple comparisons with existing experimental data to clarify physics of RREA cascades, seed particles, energy spectra of TGFs and TGEs, etc.

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