

Interactive comment on “Measurements and modelling of airborne plutonium in Subarctic Finland between 1965 and 2011” by Susanna Salminen-Paatero et al.

Anonymous Referee #1

Received and published: 2 January 2020

1 General Comments:

The manuscript lists concentrations of radionuclides and isotope ratios sampled at Rovaniemi in Finnish Lapland between 1965 and 2011, and reports on daily 48 hour-duration radionuclide dispersion simulations from hypothetical accidents at planned nuclear power plants (NPP) over one year (2010) using the SILAM model.

Overall, the manuscript does not represent a substantial contribution to scientific progress (there are no substantial new concepts, ideas, or methods). In particular, the model simulations of potential NPP at specific locations fall outside the scope of

C1

Atmospheric Chemistry and Physics. In my view the modelling part of the manuscript should be eliminated. The observations are discussed in a more balanced way (with consideration of related work, including appropriate references).

The two parts (observations and model) are disjoint and in particular the modelling component is not motivated scientifically and the description of calculations is not sufficiently complete and precise to allow their reproduction as the model setup and outcomes are not discussed in detail.

The presentation quality of the manuscript (in particular the use of the English language but also the quality of figures and tables) is not of the standard required for publication in ACP.

2 Specific Comments:

The abstract provides a concise and complete summary.

I propose that the tables listing concentrations are moved to a Supplement, as they are not directly referenced and their inclusion along with the timeline plots in Figures is superfluous.

3 Technical Corrections:

There are numerous editorial corrections required to reach publication standard, the authors should carefully follow the ACP guide for authors in editing the manuscript before re-submission.