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Earth System Science Data Discussions

Interactive comment on "Spatial radionuclide deposition data from the 60 km area around the Chernobyl nuclear power plant: results from a sampling survey in 1987" *by* Valery Kashparov et al.

Anonymous Referee #1

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General comments

This paper describes in detail the spatial radioactive contamination by condensation and fuel of the fallout caused by the Chernobyl accident in 1986, i.e. comparing 144Ce and 137Cs. Making these data available is, as nicely described in chapter 3 "Use of the data" important for assessing the long term effect of radiation exposure of the surrounding landscape including wildlife. The introduction is well written and interesting to read. As a geologist I was missing that today 137Cs deposited in 1986 is commonly used in areas far away from ChNPP to date sediment layers for environmental reconstructions

(e.g. doi: 10.1111/j.1365-3091.2012.01343.x.).

I favor Figure 9 because here you can see the development over time (May vs. August 1986), whereas other figures show only the static situation reconstructed for 6th May 1986.

When I looked into the data provided, I found a csv table with 20 parameters listed for 491 measurements between 15.05.1987 and 08.06.1987. 49 entries had ID's but no data. Metadata provide explanations and units as well as methods for the shown parameters. In the metadata it was described that missing values are due to water bodies. In the manuscript the authors state that the data include northing and easting, but I could not find coordinates in the data set. Is this missing by mistake?

Overall the study is presented in a good way. My concern is that the data are presented as "corrected to 6th May 1986", but obviously based on measurements roughly one year later in 1987. If the data are extrapolations back in time, the authors should describe in detail their methods how they calculated/corrected the values presented in the figures.

Specific comments:

Line 20-21 is this a redundant listing of "caesium-134 and caesium-137" or is there a striking difference? If so, maybe few words explaining why would help.

Line 22 You used exactly the same sentences as in the previous paper in ESSD. Please specify "them" in this context.

Line 35 Please provide a rough estimate of the vast area size.

Line 105-111 Describe how many samples and the spatial resolution of sampling (compare lines 159-160)

Line 168 I could not find Northing or Easting in the data set.

Line 178 More precise for "regularly" in which temporal resolution? Did sampling take

place at exactly the same locations? The photo shows that the upper column of the soil and grass was sampled. How did the resampling account for accumulation on top of the contaminated layer in subsequent years?

Line 198 – 200 – clarification on why data is not available – embargo or not processed?

Line 208 – 210 – uncertainty seems to be high - are there other means to check, whether the uncertainty could be limited? How did you calculate the 50%, is it standard deviation between 5 samples??

Figure 5b. – Why is the R^2 = 0.25 not discussed?

Line 230 – 232, which is associated with the plot, does not include specifics.

Technical comments:

Line 33 Is this the correct citation format (Chernobyl, 1996)?

Line 70 . . .”radiocaesium”?

Figure 1. It would help to remove blue color from legend, if it is not used, or use different color instead, because it is too close to the blue of the rivers and lakes. Is there a limit at the top of the legend?

Table 1. Scientific notation seems not very reader-friendly and the table seems long compared to the intended message. It would help if you could reduce it to a smaller number or highlight entries according to a meaningful criterion.

Line 181-182 repetitive statement to line 162?

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