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 #4

Received and published: 22 April 2020

This accompanying manuscript for the dataset "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. is a most valuable study. It is obviously written with profound knowledge of the circumstances of the accidental release of the vast amounts of radioactive material. I am not well informed which other comparable datasets might be publicly available, but it is certainly the first time I see such a detailed assessment and I find it most valuable from various angles- be it the preparation for future accidental releases, radio-ecological assessments, or other special circumstances

like the wildfires currently affecting the region of the nuclear accident. Consequently, I would not want to delay or hinder publication of this dataset, and I have only very few remarks. Obviously, the history of the dataset is a bit complicated (one wonders about the 33 years since analysis), but I got the impression that the origin and ownership of the data has been sufficiently described. Yet, it is still not entirely clear to me what the affiliation of the authors was at the time of sample acquisition, and how responsibilities were distributed. An "author contribution" section, if supported by the journal, might be a good addition. I would like to highlight that I find the development of a "proxy" for alpha-emitting radionuclides a very useful approach for future considerations of radiation safety measures following accidental nuclear fuel release. Detailed comments: 1) The information that I was missing most was a more detailed description of the gamma spectrometry methods. It would be important to know which emission lines were used for which nuclide; which emission probability (if included in the calibration), and which half-lives were used for correction to the release date. These missing pieces are listed in the order of importance. Emission lines are crucial; emission probabilities are optional; and for half-lives, the information is basically there, just not stated explicitly where the correction in mentioned. The more background information there is, the more likely it gets that the dataset can be made comparable with other, similar datasets. If the same emission line, same emission probability and same half-life have been used, one has a much better handle on comparability. One should also consider the aspect that this dataset may become a template for organising similar monitoring programmes in the future, in which case it would be most useful to have the right emission lines at hand. 2) In line 115: A source for these very specific numbers is missing. 3) In line 168: Please remove northing, easting- this is not contained in the dataset I downloaded. The angle and distance are sufficient to reconstruct the location, once a central co-ordinate is given. Northing and easting would be nice to have, but are no reason to delay publication. 4) Figure 8 and 9: I struggle a bit with the interpolation. To me it looks like a large number of measurement points cause a local anomaly, mostly a decrease, in the interpolated values. Why is the algorithm (which algorithm, by the

way) overestimating values over such large areas? Have missing values been actually excluded, or do they go in as zero?

In general, I found the manuscript to be well written and very clear, and I hope to see it published soon.

C3